



Missouri Department of Natural Resources
Air Pollution Control Program
2019 Monitoring Network Plan

November 14, 2019

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SUMMARY OF RECENT AND PROPOSED CHANGES

The Missouri Department of Natural Resources operates an extensive network of ambient air monitors. Missouri's Monitoring Network Plan summarizes the network and discusses recent and proposed changes. The changes are summarized below. Item one is a change proposed in the 2018 Monitoring Network Plan, which was approved by the U.S. Environmental Protection Agency (EPA) on April 19, 2019. Items two and three identify changes in monitoring methodology. Item 4 identifies a change in schedule resulting from a forthcoming EPA regulatory change.

1. Lead monitoring at the Glover site was discontinued at the end of April 2019.
2. Effective July 1, 2019, PM_{10-2.5} is being reported only from the Blair Street, Forest Park, and Blue Ridge I-70 sites. PM₁₀ and PM_{10-2.5} is being reported using the FEM T640x monitor at Blair St. These changes allow discontinuation of FRM PM₁₀ sampling at Blair Street.
3. A second Teledyne API 640x PM₁₀ and PM_{2.5} instrument was installed and is operational at the Blair Street site. A 640x instrument was installed and is operational at Troost as a special purpose monitor to evaluate its potential future use in the network and to evaluate any regional differences in its performance.
4. A Photochemical Assessment Monitoring Station (PAMS) Implementation Plan, updated from the version included in the 2018 Monitoring Network Plan, is included as Section 9 of this plan. PAMS monitoring is planned to begin at the Blair Street site on or before June 1, 2021.

HOW TO MAKE PUBLIC COMMENTS CONCERNING THIS PLAN

The Department of Natural Resources posted the 2019 Monitoring Network Plan (Revision 0) on the internet for public review and comment on June 18, 2019. Comments concerning the plan were accepted electronically at cleanair@dnr.mo.gov, or by mail to the following address:

Missouri Department of Natural Resources
Air Pollution Control Program
Air Quality Analysis Section/Air Monitoring Unit
P.O. Box 176
Jefferson City MO 65102

All comments received through July 22, 2019 and responses to comments are included in Appendix 2 of this final version of the plan. Corrections or changes in the plan resulting from comments are also identified in Appendix 2.

INTRODUCTION

The Missouri Department of Natural Resources operates an extensive network of ambient air monitors to comply with the Clean Air Act and its amendments. The Ambient Air Quality Monitoring Network for Missouri includes State and Local Air Monitoring Stations (SLAMS), Special Purpose Monitors (SPM), and a National Core (NCore) monitoring site consistent with requirements in federal regulation in Title 40, Code of Federal Regulations, Part 58 (40 CFR 58).

40 CFR 58.10 requires states to submit to EPA an annual monitoring network plan including any proposed network changes. 40 CFR 58.10 requires that the plan include a statement of whether the operation of each monitor meets the requirements of appendices A, B, C, D, and E of 40 CFR 58 where applicable. All of the monitors in the Missouri air monitoring network, including those operated by the state and those operated by industries under state review meet the applicable requirements of 40 CFR 58. Any changes to the SLAMS requires approval by the EPA Regional Administrator.

The plan must contain the following information for each monitoring station in the network; (See Appendix 1 and the body of this document):

1. The Air Quality System (AQS) site identification number for existing stations.
2. The location, including the street address and geographical coordinates, for each monitoring station.
3. The sampling and analysis method used for each measured parameter.
4. The operating schedule for each monitor.
5. Any proposal to remove or move a monitoring station within a period of 18 months following the plan submittal.
6. The monitoring objective and spatial scale of representativeness for each monitor.
7. The identification of any sites that are or are not suitable for comparison against the annual PM_{2.5} National Ambient Air Quality Standard (NAAQS).

8. The metropolitan statistical area, core-based statistical area, combined statistical area or other area represented by the monitor.

A network assessment is required every five years, and the most recent one was completed in 2015. The Department will initiate the five year network assessment in 2020.

Network Design

Federal regulation (40 CFR Part 58) establishes the design criteria for the ambient air monitoring network. The network is designed to meet three general objectives:

1. Provide air pollution data to the public in a timely manner.
2. Support compliance with ambient air quality standards and emissions strategy development.
3. Support air pollution research studies.

Specific objectives for the monitoring sites are:

1. To determine the highest pollution concentrations in an area,
2. Measure typical concentrations in areas of high population density,
3. Determine the impact of significant sources or source categories,
4. Determine general background levels and
5. Determine the extent of regional pollutant transport among populated areas.

Minimum site requirements, based on Core Based Statistical Area (CBSA) population, are provided for ozone (O₃), sulfur dioxide (SO₂), carbon monoxide (CO), nitrogen dioxide (NO₂), airborne particulate matter with aerodynamic diameter equal to or smaller than 10 micrometers (PM₁₀), and airborne particulate matter with aerodynamic diameter equal to or smaller than 2.5 micrometers (PM_{2.5}).

40 CFR 58 Appendix E establishes the specific requirements for monitor/probe siting to ensure the ambient data represents the stated objectives and spatial scale. The requirements are pollutant/scale specific. Periodically, Department staff visit and evaluate each monitoring site to ensure compliance with the requirements of 40 CFR 58 Appendix E. Additional details concerning the sites are available in Appendix 1.

Unanticipated Network Modifications

Changes to the monitoring network may occur outside the annual monitoring network planning process due to unforeseen circumstances including, but not limited to, severe weather, natural events, changes in property ownership, changes in federal funding, or changes in funding available from air emission fees from industrial facilities. The Department will communicate any changes to the network that result from conditions outside the state's logistical control and not included in the current monitoring network plan to EPA Region 7 staff and identified in the subsequent annual monitoring network plan.

Special Purpose Monitors

A monitor is designated as a special purpose monitor (SPM) consistent with the regulatory definition in 40 CFR 58.20 (a): “An SPM is defined as any monitor included in an agency's monitoring network that the agency has designated as a special purpose monitor in its annual monitoring network plan and in AQS, and which the agency does not count when showing compliance with the minimum requirements of this subpart for the number and siting of monitors of various types.”

SPMs may be established for many different purposes, including but not limited to NAAQS compliance evaluation, air quality research and characterization, air quality investigation, and monitoring method evaluation.

The Department includes SPMs in the annual monitoring network plan required by 40 CFR 58.10. The Department installs or approves the installation of these monitors consistent with 40 CFR 58.20 (f). In addition, the Department removes, or allows removal of these monitors, following federal guidelines, which are different for SPMs than for SLAMS. There is more description of each SPM later in the document. The Missouri Monitoring Network Description, Appendix 1, identifies which monitors are SPM and which are SLAMS.

Industrial Monitors

Ambient air monitoring sites classified as Industrial in this plan indicate the ambient air monitoring at that site is being conducted by the industrial source or its contractor under an approved industrial monitoring Quality Assurance Project Plan (QAPP) and departmental Quality Management Plan (QMP). Department staff conducts quality assurance audits of these monitoring sites consistent with the approved QAPP.

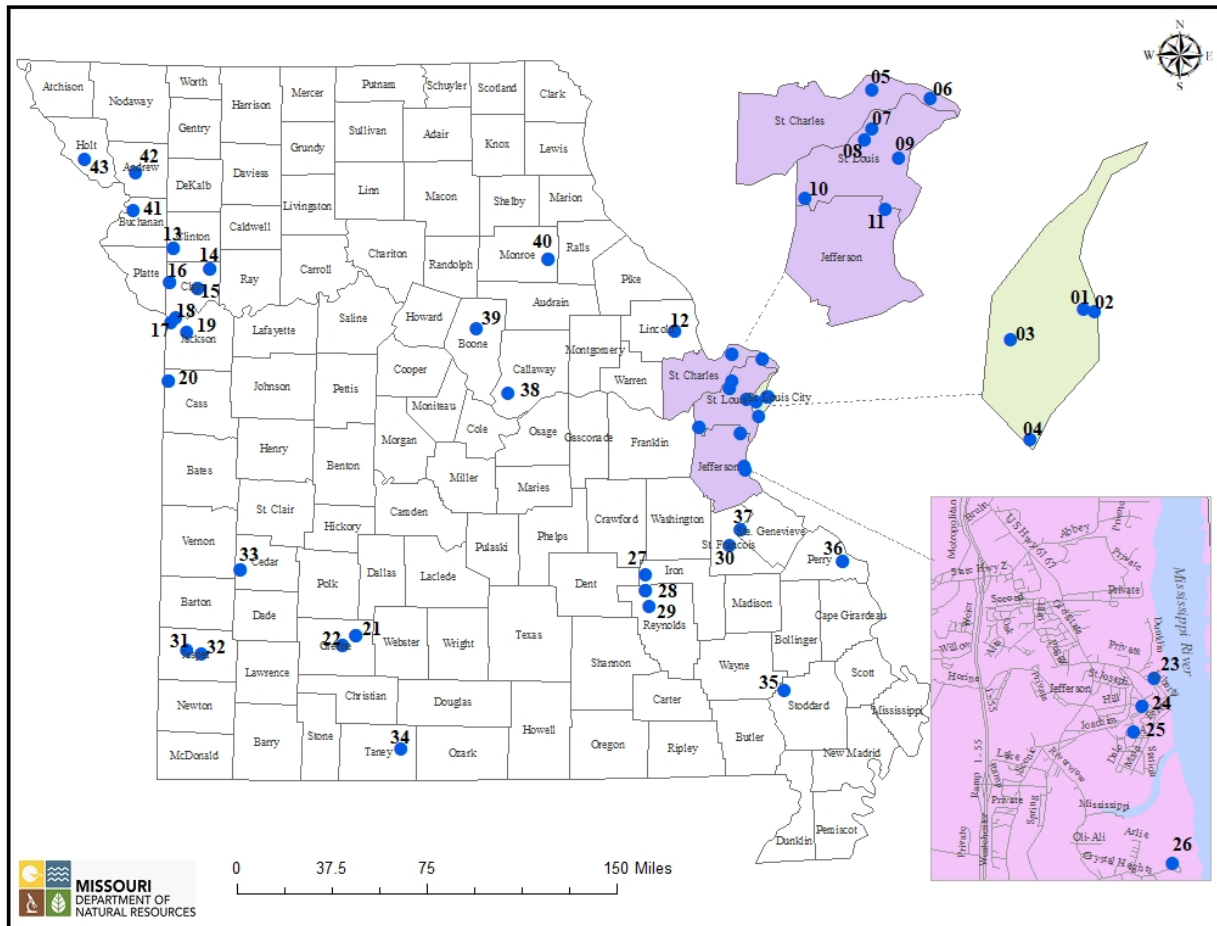
Missouri oversees ambient air monitoring sites operated by industrial sources for NAAQS compliance. The Department has incorporated these Industrial sites in the annual Monitoring Network Plans. Currently, industrial monitoring for some lead and SO₂ sites is incorporated in the ambient air monitoring network.

Some industrial lead monitoring sites are classified in AQS as non-regulatory due to the sites transitioning to non-ambient status. However, the Department has required continued monitoring at these locations in agreements with the industrial source for trends analysis or other purposes.

2019 AMBIENT AIR MONITORING NETWORK, STATE SITES

The 2019 statewide monitoring network is shown in the following map and table.

2019 Missouri State Monitoring Network



Legend (State's Monitoring Network)

St. Louis Area

Site#	Site Name	Parameter Monitored
01	Blair Street [^]	PM ₁₀ , PM _{2.5} , PM _{2.5} (Spec), PMCoarse, PM ₁₀ -LC, PM ₁₀ -Pb, O ₃ , SO ₂ , NO ₂ , NO _y , NO _x , NO, CO, Carbonyls, PAHs, VOCs, Air Toxics, Carbons, PM ₁₀ Metals, WS, WD, OT, IT, SR, BP, RH
02	Branch Street	PM ₁₀ , PM _{2.5} , PM ₁₀ -LC, WS, WD, OT, IT, BP, RH
03	Forest Park	PM _{2.5} , PMCoarse, PM ₁₀ -LC, NO ₂ , NO _x , NO, CO, BC, WS, WD, OT, IT, SR, BP, RH, Prec
04	South Broadway	PM ₁₀ , PM _{2.5} , PM ₁₀ -LC, IT, BP, RH
05	Orchard Farm	O ₃ , IT
06	West Alton	O ₃ , WS, WD, OT, IT, SR
07	Rider Trail I-70	NO ₂ , NO _x , NO, WS, WD, OT, IT, SR, Prec, BP, SO ₂ (RES)
08	Maryland Heights	O ₃ , IT
09	Ladue	PM _{2.5} , OT, IT, BP, RH
10	Pacific	O ₃ , IT
11	Arnold West	PM ₁₀ , PM _{2.5} , PM _{2.5} (Spec), PM ₁₀ -LC, IT, O ₃ , WS, WD, OT, IT, BP, RH
12	Foley West*	O ₃ , IT

Kansas City Area

Site#	Site Name	Parameter Monitored
13	Trimble	O ₃ , IT
14	Watkins Mill	O ₃ , IT
15	Liberty	PM _{2.5} , PM ₁₀ -LC, O ₃ , OT, IT, SR, BP, RH
16	Rocky Creek	O ₃ , IT
17	Troost	PM _{2.5} , PM ₁₀ -LC, SO ₂ , NO ₂ , NO _x , OT, IT
18	Front Street	PM ₁₀
19	Blue Ridge I-70	PM _{2.5} , PMCoarse, PM ₁₀ -LC, NO ₂ , NO _x , NO, CO, BC, WS, WD, OT, IT, SR, BP, RH, Prec
20	Richards Gebaur-South	PM _{2.5} , PM ₁₀ -LC, O ₃ , WS, WD, OT, IT, BP, RH

Springfield Area

Site#	Site Name	Parameter Monitored
21	Fellows Lake	O ₃ , IT
22	Hillcrest High School	O ₃ , PM ₁₀ , PM _{2.5} , PM ₁₀ -LC, OT, IT, BP, RH

Herculaneum Area

Site#	Site Name	Parameter Monitored
23	Sherman	Pb
24	Dunklin High School	Pb
25	Mott Street	Pb
26	Ursuline North	Pb

New Lead Belt Area

Site#	Site Name	Parameter Monitored
27	Buick NE	Pb, SO ₂ , WS, WD, IT
28	Oates	Pb
29	Fletcher	Pb
30	St. Joe State Park	Pb

Outstate Area

Site#	Site Name	Parameter Monitored
31	Alba	O ₃ , IT
32	Carthage	PM ₁₀ , WS, WD, IT
33	El Dorado Springs	PM _{2.5} , PM ₁₀ -LC, O ₃ , WS, WD, OT, IT, BP, RH
34	Hercules Glades	PM _{2.5} (Spec)-IMPROVE
35	Mingo	PM _{2.5} (Spec)-IMPROVE
36	Farrar	O ₃ , IT
37	Bonne Terre	O ₃ , IT, SR
38	New Bloomfield	O ₃ , IT
39	Finger Lakes	O ₃ , IT
40	Mark Twain State Park	PM ₁₀ , SO ₂ , NO ₂ , NO _x , NO, O ₃ , WS, WD, IT
41	St. Joseph Pump Station	PM ₁₀ , PM _{2.5} , PM ₁₀ -LC, WS, WD, OT, IT, RH
42	Savannah	O ₃ , IT
43	Forest City, Exide	Pb

Acronyms

PM ₁₀	Particulate Matter (Diameter size ≤10 micrometer)
PM _{2.5}	Particulate Matter (Diameter size ≤2.5 micrometer)
PMCoarse	Particulate Matter (Diameter size between 2.5 and 10 micrometer)
Spec	Speciation
SO ₂	Sulfur Dioxide
NO ₂	Nitrogen Dioxide
NO	Nitric Oxide
NO _y	Reactive Oxides of Nitrogen
NO _x	Oxides of Nitrogen
O ₃	Ozone
CO	Carbon Monoxide
Pb	Lead (High Volume)
BC	Black Carbon
Prec	Precipitation
WS	Resultant Wind Speed
WD	Resultant Wind Direction
OT	Outside Temperature
IT	Inside Temperature
SR	Solar Radiation
BP	Barometric Pressure
RH	Relative Humidity
IMPROVE	Interagency Monitoring of Protected Visual Environment (Regional Haze) Research
RES	Research

*Relocated from former Foley site
[^]PM₁₀-Pb at Blair is NAAQS excluded

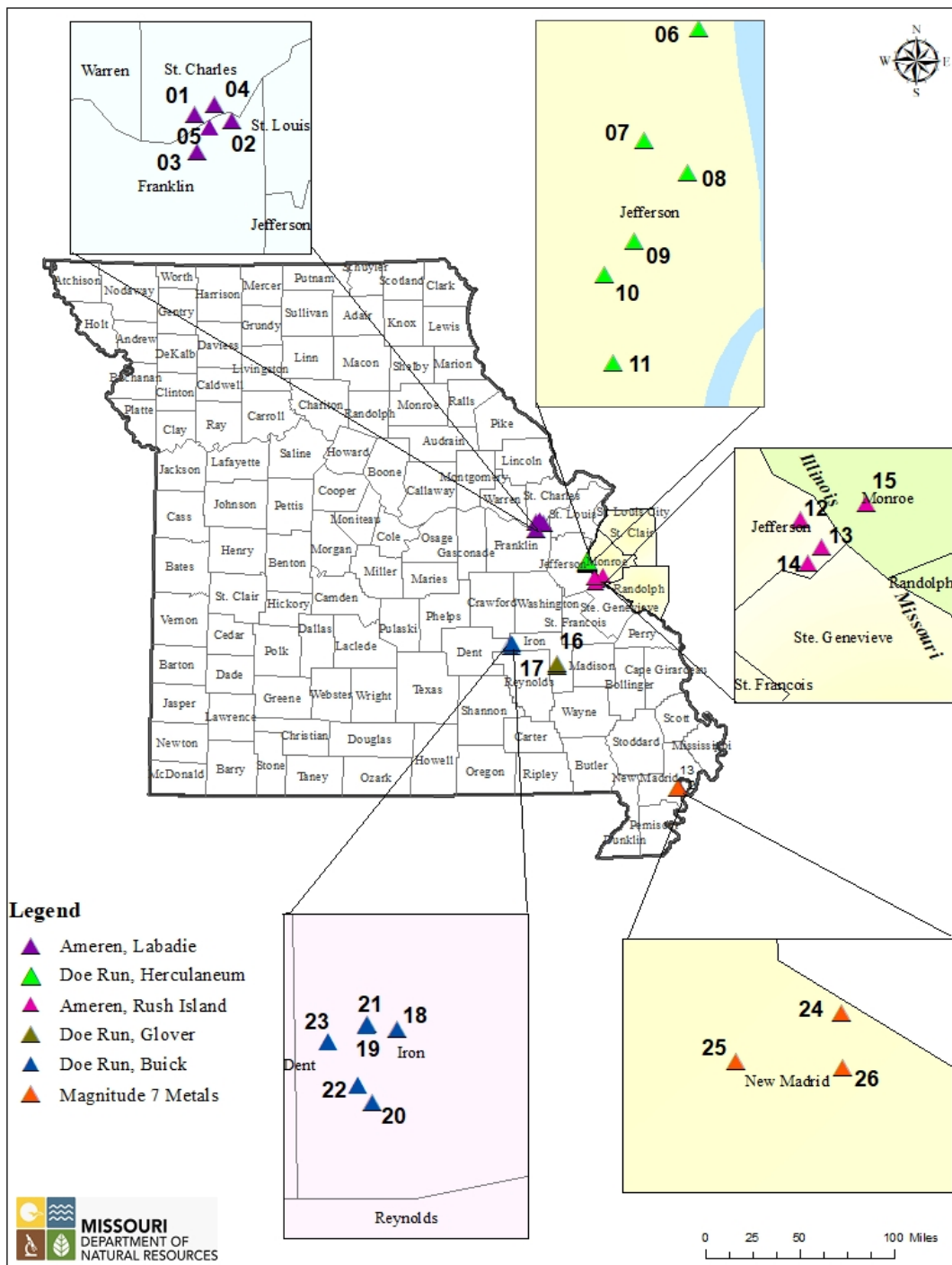
Notes:

1. The acronym PM₁₀-LC is also commonly referred to as PM_{10c} when collected with a low volume sampler consistent with appendix O to Part 50. PM₁₀-LC means particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers where the concentration is reported at local conditions of ambient temperature and barometric pressure. PM₁₀-LC is used in this document to describe any continuous or filter based PM₁₀ low volume measurement concentration that is reported at local conditions of ambient temperature and barometric pressure.
2. PM₁₀ means particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers where the concentration is adjusted to EPA reference conditions of ambient temperature and barometric pressure (25 °C and 760 millimeters of mercury or STP).
3. PMCoarse is also frequently referred to as PM_{10-2.5}.

2019 AMBIENT AIR MONITORING NETWORK, INDUSTRIAL SITES

Monitoring sites operated by industries are shown in the following map and listed in the following table.

2019 Missouri Industry Monitoring Networks



Legend (Industry Monitoring Network)

Ameren, Labadie Energy Center

Site#	Site Name	Parameter Monitored
01	Northwest	SO ₂ , (WS, VWS, WD, OT, σ_{θ} , σ_{ϕ} , RH) [^]
02	Valley	SO ₂ , (WS, VWS, WD, OT, SR, BP, RH, Prec, σ_{θ} , σ_{ϕ}) [^]
03	Southwest	SO ₂
04	North	SO ₂
05	Labadie Plant	SODAR (WS, WD, OT, σ_{θ} , σ_{ϕ}) [^]

Acronyms

SO ₂	Sulfur Dioxide
Pb	Lead (High Volume)
σ_{θ}	Sigma Theta (Standard Deviation of Horizontal Wind Direction)
WS	Resultant Wind Speed
WD	Resultant Wind Direction
OT	Outside Temperature
SR	Solar Radiation
BP	Barometer Pressure
RH	Relative Humidity
σ_{ϕ}	Sigma Theta (Standard Deviation of the Vertical Wind Speed)
Prec	Precipitation
VWS	Vertical Wind Speed

Doe Run, Herculeaneum

Site#	Site Name	Parameter Monitored
06	Sherman	Pb
07	Dunklin	Pb
08	Broadway	(WS, WD, OT, SR, BP, RH, Prec, σ_{θ}) ^{^*}
09	Mott Street	Pb
10	North Cross	Pb
11	Church Street*	Pb

Ameren, Rush Island Energy Center

Site#	Site Name	Parameter Monitored
12	Weaver-AA	SO ₂
13	Johnson Tall Tower	(WS, VWS, WD, OT, σ_{θ} , σ_{ϕ}) [^]
14	Natchez	SO ₂
15	Fults, IL	SO ₂ , (WS, VWS, WD, OT, SR, BP, RH, Prec, σ_{θ} , σ_{ϕ}) [^]

- ^a Metrological Data is not submitted to the EPA Air Quality (AQS) Database
- [^] Regulatory Dispersion Modeling Grade Parameters
- ^{*} Non-Ambient Monitor

Doe Run, Glover

Site#	Site Name	Parameter Monitored
16	Post Office #2*	Pb
17	Big Creek*	Pb

Doe Run, Buick

Site#	Site Name	Parameter Monitored
18	Buick NE	Pb
19	Buick North#5*	Pb
20	Buick South#1*	Pb, (WS, WD, OT, SR, BP, RH, Prec, σ_{θ}) ^{^a}
21	Hwy 32 Northeast	SO ₂
22	West Entrance	SO ₂
23	County Road 75	SO ₂

Magnitude 7 Metals

Site#	Site Name	Parameter Monitored
24	Site #1	SO ₂
25	Site #2	SO ₂
26	Site #3	SO ₂ , (WS, WD, OT)

MONITORING NETWORK AND PROPOSED CHANGES

1. Lead Monitoring Network

Changes to airborne lead (Pb) requirements in 2010 require monitoring lead sources emitting 0.50 tons per year (tpy) or more, revised from the previous requirement for monitoring sources emitting one ton per year or more. (All airports in Missouri are exempt from this requirement.) Review of current 2017 emission data did not identify any new sources emitting greater than 0.50 tpy. The Department will continue to monitor emission data for new sources in the future.

1.1 Forest City, Exide Monitoring Site

The 2013 Monitoring Network Plan identified the resumption of total suspended particulate matter (TSP) lead monitoring at a location near the Exide Secondary Lead Smelter in Forest City, Missouri. As a result of changes in operations at the facility, including addition of pollution control equipment, no exceedances of the lead NAAQS has been monitored since October-December 2013.

1.2 Doe Run Operated Sites

Doe Run operates lead monitoring sites in the vicinity of its industrial facilities in Herculaneum, Glover and Boss. Operation of some of these sites is required by consent judgments or agreements with the Department, and operation of other sites is voluntary.

Doe Run Herculaneum also operates one ten meter tower meteorological monitoring site as per language set forth under the 2011 Consent Judgment. Doe Run Herculaneum discontinued the 40 meter tower at Broad Street as per the Consent Judgment.

1.3 Department's Lead Monitoring Network in Herculaneum

With the cessation of primary lead smelting at the Doe Run facility in Herculaneum, the Department modified the sampling schedule at the Dunklin High School and Sherman sites to every sixth day and the schedule for the collocated sampler at the Mott Street site to every third day effective January 2018. Doe Run continues to sample every third day at Dunklin High School. Starting in January 2018, reported monthly and three-month averages at Dunklin High School include Doe Run's sampling results for days when the State sampler did not operate.

1.4 St. Joe State Park Monitoring Site

The St. Joe State Park site was intended to monitor airborne lead concentrations during remediation activities involving old lead mining waste in the Federal Mine tailings. The bulk of the remediation activity was completed as of late July/early August 2014. The three-month rolling average has not exceeded the lead standard, $0.15 \mu\text{g}/\text{m}^3$, since the site began monitoring lead on July 1, 2010. The highest three-month rolling average airborne lead concentration at that site was $0.14 \mu\text{g}/\text{m}^3$ in July-September 2011. This elevated lead concentration was attributable to

remediation activities near the monitor. Since that time the three-month average lead concentration at that site has not exceeded 0.13 $\mu\text{g}/\text{m}^3$.

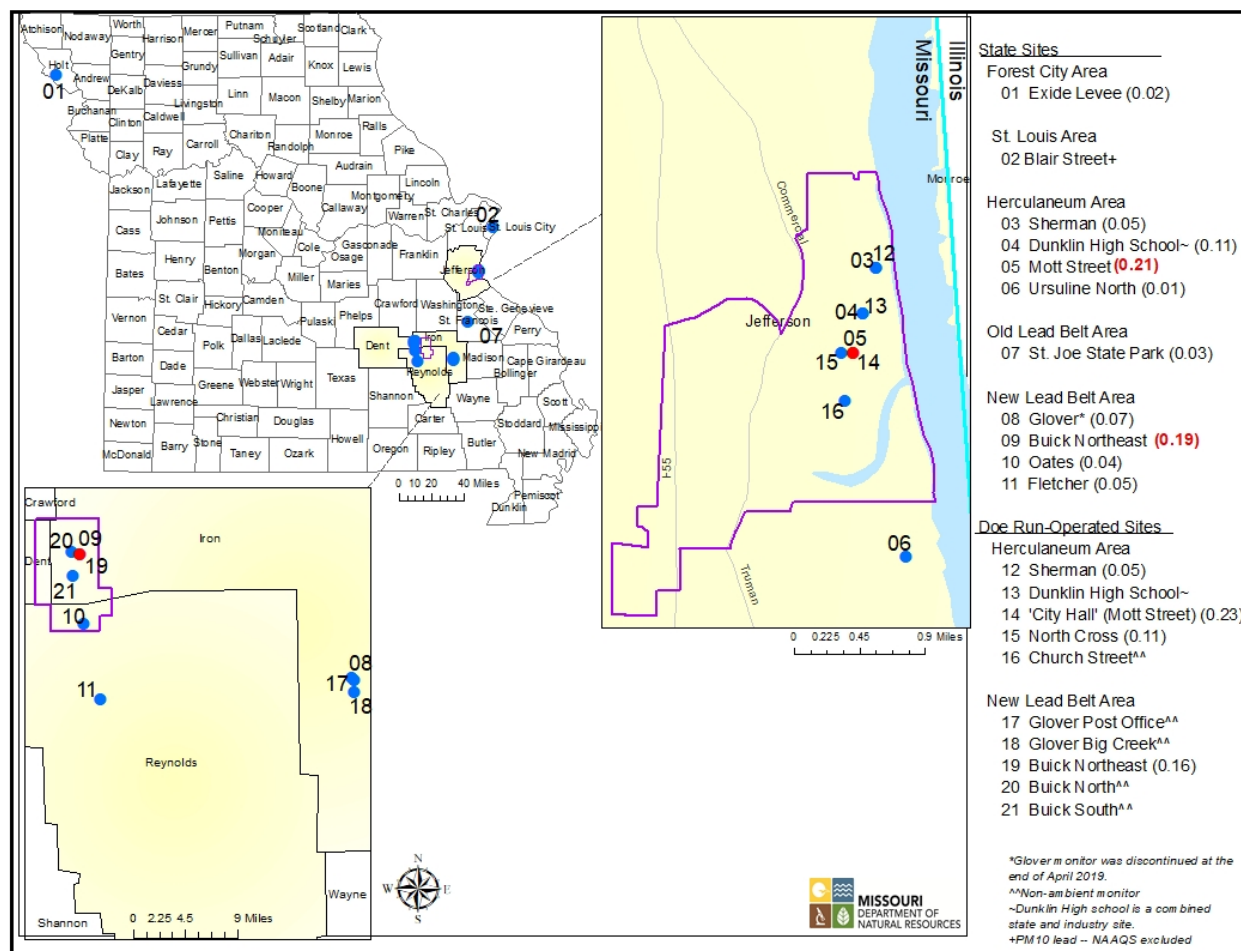
1.5 Glover Lead Monitor

The Department proposed to discontinue the Glover lead monitor at the end of calendar year 2018 in the 2018 Monitoring Network Plan. However, that Plan was not approved by EPA until April 19, 2019. Therefore, operation of the Glover lead monitor was discontinued at the end of April 2019.

Doe Run operates two airborne lead monitors on Doe Run property in Glover. Continued operation of these industrial monitors will be consistent with any future modifications of the 2003 Settlement Agreement between the Department, the Missouri Air Conservation Commission and the Doe Run Company.

The 2019 lead monitoring network is shown in the following map.

2019 Missouri Lead Monitoring Network*, NAAQS=0.15µg/m³ (3 month).
(Numbers in parenthesis are 2016-2018 Design Values)



*The Glover site was discontinued at the end of April 2019. No other changes are proposed in this plan

2. Sulfur Dioxide (SO₂) Monitoring Network

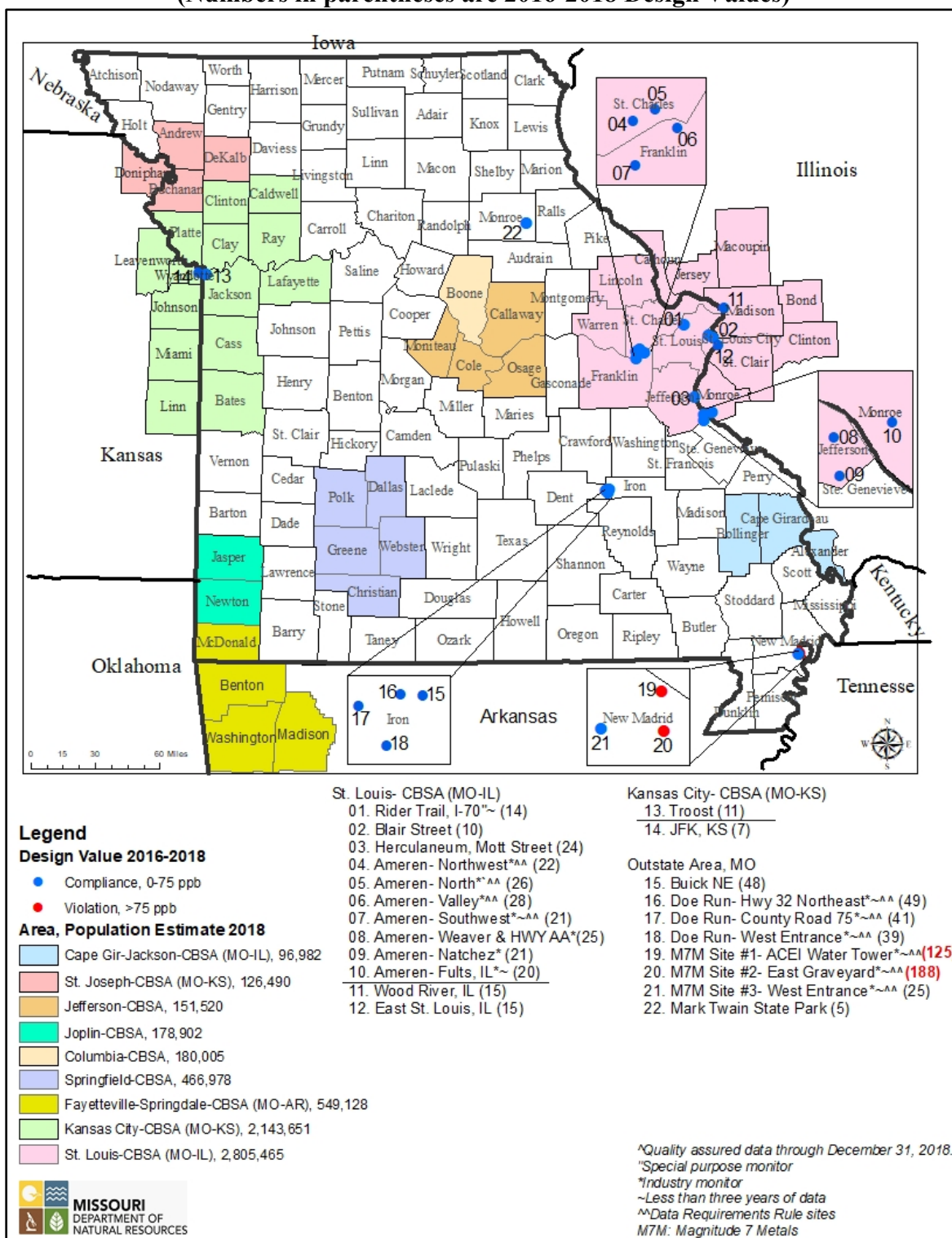
EPA recently reviewed the SO₂ standard and announced in March 2019 the standard would remain at 75 parts per billion (ppb), established in 2010. The 2011 Monitoring Network Plan (<http://dnr.mo.gov/env/apcp/docs/2011monitoringnetwork.pdf>) identified the minimum network monitoring required by the Population Weighted Emissions Index (PWEI). This analysis was updated using 2018 estimated population data from the United States Census Bureau and 2014 National Emission Inventory (NEI) emissions data. Results are summarized in the following table. The table includes a minor correction as discussed in Appendix 2. The required numbers of monitoring sites based on the PWEI are two sites in the St. Louis CBSA, one site in the Kansas City CBSA and no others required in Missouri CBSAs. This requirement is met in the St. Louis area by the Blair Street site in Missouri and the East St. Louis site in Illinois and in the Kansas City area by the Troost site. The requirements are exceeded if the Wood River site in Illinois, the Herculaneum site in Missouri and the JFK site in Kansas are also considered. The East St. Louis site is expected to continue based on communication received from the Illinois Environmental Protection Agency.

The Department discontinued all monitoring, including SO₂, at the Margarett site in St. Louis effective at the beginning of 2019 as proposed in the 2018 Monitoring Network Plan. In addition to the minimum network requirements detailed above, the Department oversees several industrial SO₂ monitoring sites and one additional site, all detailed in the following sections.

Population Weighted Emission Index (PWEI) Summary				
Area	Estimated 2018 Population	2014 NEI SO2 Emissions (tpy)	PWEI	Required Number of SO2 Monitors
Kansas City	2,143,651	39,984.07	85,123	1
St. Louis	2,805,465	80,150.26	225,009	2
Fayetteville-Springdale-Rogers	549,128	8,307.59	4,465	0
Springfield	466,978	5,241.20	2,423	0
Joplin	178,902	6,481.34	1,157	0
Columbia	180,005	6,288.77	1,121	0
Jefferson City	151,520	240.76	36	0
St. Joseph	126,490	1,228.81	156	0
Cape Girardeau	96,982	789.12	76	0
Maryville	22,304	27.00	1	0
Warrensburg	53,652	37.40	2	0
Marshall	22,895	55.29	1	0
Sedalia	42,542	100.69	4	0
Branson	87,601	153.61	13	0
Kirksville	29,938	112.04	3	0
Moberly	24,763	16,615.31	414	0
Lebanon	35,713	90.89	3	0
Mexico	25,473	50.90	1	0
Fort Leonard Wood	52,014	76.06	4	0
Rolla	44,732	340.16	15	0
West Plains	40,076	132.86	5	0
Fort Madison-Keokuk	58,741	698.12	41	0
Quincy	75,546	1,417.95	108	0
Hannibal	38,804	3,386.27	132	0
Farmington	66,692	90.97	6	0
Poplar Bluff	42,639	119.32	5	0
Sikeston	38,458	6,730.25	259	0
Kennett	29,423	46.77	1	0
PWEI=population*SO2(tpy)/1,000,000				
PWEI ≥ 1,000,000: 3 monitors				
1,000,000 > PWEI ≥ 100,000: 2 monitors				
100,000 > PWEI ≥ 5,000: 1 monitor				
SO2 emissions including fire emissions				

The Department's 2019 SO₂ monitoring network is shown in the following map.

**2019 Missouri Sulfur Dioxide (SO₂) Monitoring Network*, NAAQS=75 ppb (1 hour).
(Numbers in parentheses are 2016-2018 Design Values)**



*No changes to the SO₂ network are proposed in this plan.

In 2015 EPA finalized the SO₂ Data Requirements Rule (DRR). This rule required air agencies to characterize air quality, either by monitoring or modeling, around sources that emit 2,000 tons per year (tpy) or more of SO₂.

Sources that are monitoring due to the DRR include: Ameren Labadie Energy Center, Magnitude 7 Metals, formerly Noranda Aluminum, and Doe Run Buick Resource Recycling Facility. In addition, Ameren Rush Island Energy Center is conducting monitoring on an accelerated schedule (compared to the DRR timeline) based on an agreement with the Department associated with the Jefferson County nonattainment plan submitted to EPA in May 2015. The monitoring of these sources is discussed in the following sections.

The industrial sources are conducting the monitoring, but they are conducting it in accordance with the SLAMS requirements in 40 CFR Part 58. The Department reviewed and approved the siting of the monitors based on federal regulations. To meet the requirements of the DRR, these monitors will need a minimum of three years of monitoring data. The sources cannot discontinue monitoring thereafter without EPA approval based on the requirements of 40 CFR 51.1203(c)(3) or 40 CFR 58.14.

2.1 Industrial SO₂ & Meteorological Monitoring near the Labadie and Rush Island Energy Centers

Ameren operates two SO₂ ambient Air Monitoring networks around the Labadie and Rush Island power plants. These monitors are classified as industrial SO₂ monitors. The following sections describe the current status of the Labadie and Rush Island SO₂ monitoring networks.

2.1.1 Labadie Energy Center

Two industrial SO₂ ambient air monitoring sites and a meteorological monitoring station began operation in April 2015 in the area around the Ameren Labadie Energy Center, located at 226 Labadie Power Plant Road in Franklin County, Missouri. Two additional industrial SO₂ monitoring sites southwest and north of the Labadie Energy Center were installed and began operation on Jan. 1, 2017. In addition, meteorological monitoring using a 10 meter tower was added at the Northwest site. A sound detection and ranging (SODAR) instrument was initially located at the Valley site, relocated to the Northwest site in February 2017, and relocated again to the Labadie plant site in August 2017. These monitoring sites (see the following table) are operated by Ameren under a Department-approved Quality Assurance Project Plan (QAPP). The rationale for site selection based on modeling results is discussed extensively in the 2015 and 2016 Monitoring Network Plans.

Summary of Labadie Area Industrial Monitoring Stations:

Monitoring Objective: Source Oriented

Spatial Scale of representativeness: Middle Scale (100 square meters [m²] to 0.5 square kilometer [km²])

Labadie Northwest -SO₂, 10 Meter Meteorological Station. (Latitude: 38.5818
Longitude: -90.865528)

Labadie Valley -SO₂, 10 Meter Meteorological Station. (Latitude: 38.572522

Longitude: -90.796911)
Labadie Southwest -SO₂, (Latitude: 38.52825 Longitude: -90.86301)
Labadie North -SO₂, (Latitude: 38.59557 Longitude: -90.82864)
Labadie Plant -SODAR, (Latitude: 38.54860 Longitude: -90.83750)

2.1.2 Rush Island Energy Center

On March 23, 2015, the Department and Ameren entered into a consent agreement (see Appendix 3 of the 2015 Monitoring Network Plan) that included Ameren installing and operating an SO₂ monitoring network around the Rush Island Energy Center under Department oversight. The siting of these monitors was consistent with the technical process described in the SO₂ DRR.

The Rush Island monitoring network design was based on evaluation of dispersion modeling, as described in the 2015 and 2016 Monitoring Network Plans. This network began operation in December 2015.

Summary of Rush Island area Industrial Monitoring Stations:

Monitoring Objective: Source Oriented

Spatial Scale of representativeness: Middle Scale (100 m² to 0.5 km²)

Weaver-AA -SO₂, (Latitude: 38.144529 Longitude: -90.304726)

Natchez -SO₂, (Latitude: 38.10525 Longitude: -90.29842)

Fults, IL, -SO₂, 10 Meter Meteorological Station (Latitude: 38.15908 Longitude: -90.22728)

Johnson Tall Tower -Meteorological Station Only, anemometers at 62.5 meter (m) and 132.5 m levels (Latitude: 38.11999 Longitude: -90.28214)

2.2 Industrial SO₂ & Meteorological Monitoring near the Doe Run Buick Resource Recycling Facility

The Doe Run Company began SO₂ monitoring at three sites in the area around the Buick Resource Recycling Facility near Boss, Missouri starting Jan. 1, 2017. Meteorological monitoring is also conducted at the Buick South lead monitoring site, south of the facility. These sites are operated under a Department-approved QAPP, which includes performance evaluations (audits) by Department staff. Locations of these ambient SO₂ monitoring sites was determined on the basis of air quality modeling of the impact of facility emissions, as described in the 2016 Monitoring Network Plan.

Summary of Doe Run Buick area Industrial Monitoring Stations:

Monitoring Objective: Source Oriented

Spatial Scale of representativeness: Middle Scale (100 m² to 0.5 km²)

West Entrance -SO₂, (Latitude: 37.63211 Longitude: -91.13565)

County Road 75 -SO₂, (Latitude: 37.64876 Longitude: -91.14890)

Hwy 32 Northeast (Former PSD site) -SO₂, (Latitude: 37.65319 Longitude: 91.12795)

2.3 Industrial SO₂ & Meteorological Monitoring near the Magnitude 7 Metals (formerly Noranda Aluminum) Facility

Magnitude 7 Metals is conducting SO₂ monitoring at three sites and meteorological monitoring at one site in the area around their facility near New Madrid, Missouri. Monitoring at these sites started in January 2017. These sites are operated under a Department-approved QAPP, which includes performance evaluations (audits) by Department staff. Locations for these ambient SO₂ monitoring sites were determined on the basis of air quality modeling of the impact of facility emissions, and the potential area for meteorological monitoring was determined on the basis of an analysis by a Department meteorologist. These evaluations are described in the 2016 Monitoring Network Plan.

Summary of Magnitude 7 Metals area Industrial Monitoring Stations:

Monitoring Objective: Source Oriented

Spatial Scale of representativeness: Middle Scale (100 m² to 0.5 km²)

Site 1 -SO₂, (Latitude: 36.51361 Longitude: -89.56111)

Site 2 -SO₂, (Latitude: 36.50861 Longitude: -89.56083)

Site 3 -SO₂ and Meteorology, (Latitude: 36.50889 Longitude: -89.57083)

2.4 Rider Trail I-70 Site

The Department added an SO₂ monitor, designated as SPM, to the existing Rider Trail I-70 monitoring site in May 2016 to evaluate SO₂ levels in the general area. Since the site was installed the fourth highest daily one-hour SO₂ concentrations monitored were 14 ppb, 16 ppb, and 12 ppb in 2016, 2017, and 2018 respectively.

Since the monitor is located in the near-roadway environment, and there are several SO₂ sources in the area, the Department is initially classifying the spatial scale of representativeness of the SO₂ measurements as middle-scale. This classification may be reevaluated if trends in the monitoring data and other analysis warrant increasing the spatial scale of representativeness. The monitoring objective for this monitor is to measure population exposure.

3. National Air Toxics Trends Stations (NATTS), and Other Non-Criteria Pollutant Special Purpose Monitoring

3.1 National Air Toxics Trends Stations Monitoring

Routine NATTS monitoring will continue at Blair Street as described in the NATTS work plan.

3.2 Black Carbon

Black Carbon is monitored with an aethalometer as part of the NATTS program at Blair Street. Also, as part of the condition of receiving one time section 103 grant funds to implement sites for the near-roadway monitoring network, the Department will continue to conduct special purpose PM_{2.5} black carbon monitoring at the Forest Park and Blue Ridge I-70 near- roadway NO₂ sites using aethalometers.

4. PM_{2.5} Monitoring Network

4.1 PM_{2.5} SLAMS Network

The minimum monitoring requirement, based on population and historic PM_{2.5} measurements (40 CFR 58 Appendix D) requires three sites in St. Louis (because of PM_{2.5} concentrations measured on the Illinois side) and two sites in Kansas City. The St. Louis requirement is met by four Missouri sites plus three Illinois sites in the St. Louis CBSA (in addition to the near-road sites). The Kansas City requirement is met by three Missouri sites plus three Kansas sites in the Kansas City CBSA (in addition to the near-road site).

There is only one PM_{2.5} monitor in Missouri that is not applicable for comparison to the annual NAAQS. The Branch Street site is a middle-scale site focused on a group of sources in the industrial riverfront area and is not representative of neighborhood or larger spatial scale for PM_{2.5} monitoring. The PM_{2.5} monitors deployed to collocate with the near-roadway NO₂ monitors are micro-scale monitors, but EPA has indicated in 40 CFR 58 Appendix D, 4.7.1(c)(2) that "...In many situations, monitoring sites that are representative of microscale or middle-scale impacts are not unique and are representative of many similar situations. This can occur along traffic corridors or other locations in a residential district. In this case, one location is representative of a number of small scale sites and is appropriate for evaluation of long-term or chronic effects." EPA may consider these monitors representative of larger areas near roadways and comparable to the annual PM_{2.5} NAAQS consistent with 40 CFR 58.30.

The requirement for regional background PM_{2.5} monitoring is met by the Hercules Glades and Mingo Interagency Monitoring of Protected Visual Environments (IMPROVE) sites. In addition to these sites, the Arnold West and El Dorado Springs sites also serve to monitor transport into eastern and western Missouri urban areas respectively.

TEOM-1405-DF and TEOM-1405-F instruments are the primary instruments being used in the state network for PM_{2.5} measurement. EPA has also designated the TEOM-1405-DF, operating with firmware version 1.70 and later, as a Federal Equivalent Method (FEM) on Nov. 12, 2013, for PM₁₀ and PM_{10-2.5}, (<http://www.gpo.gov/fdsys/pkg/FR-2013-11-12/pdf/2013-27016.pdf>). However, the Department does not report data from the PM₁₀ FEM channels of the TEOM-1405-DF instruments to AQS.

Network PM_{2.5} collocated FRM requirements are satisfied at the Blair Street NCore site in St. Louis. The following figure shows FRM/FEM comparability statistics (Class III performance criteria of 40 CFR Part 53) for the TEOM-1405-DF (EQPM-0609-182) operating at the Blair Street, St. Louis site. The additive and multiplicative bias meets the Class III performance criteria of 40 CFR Part 53.

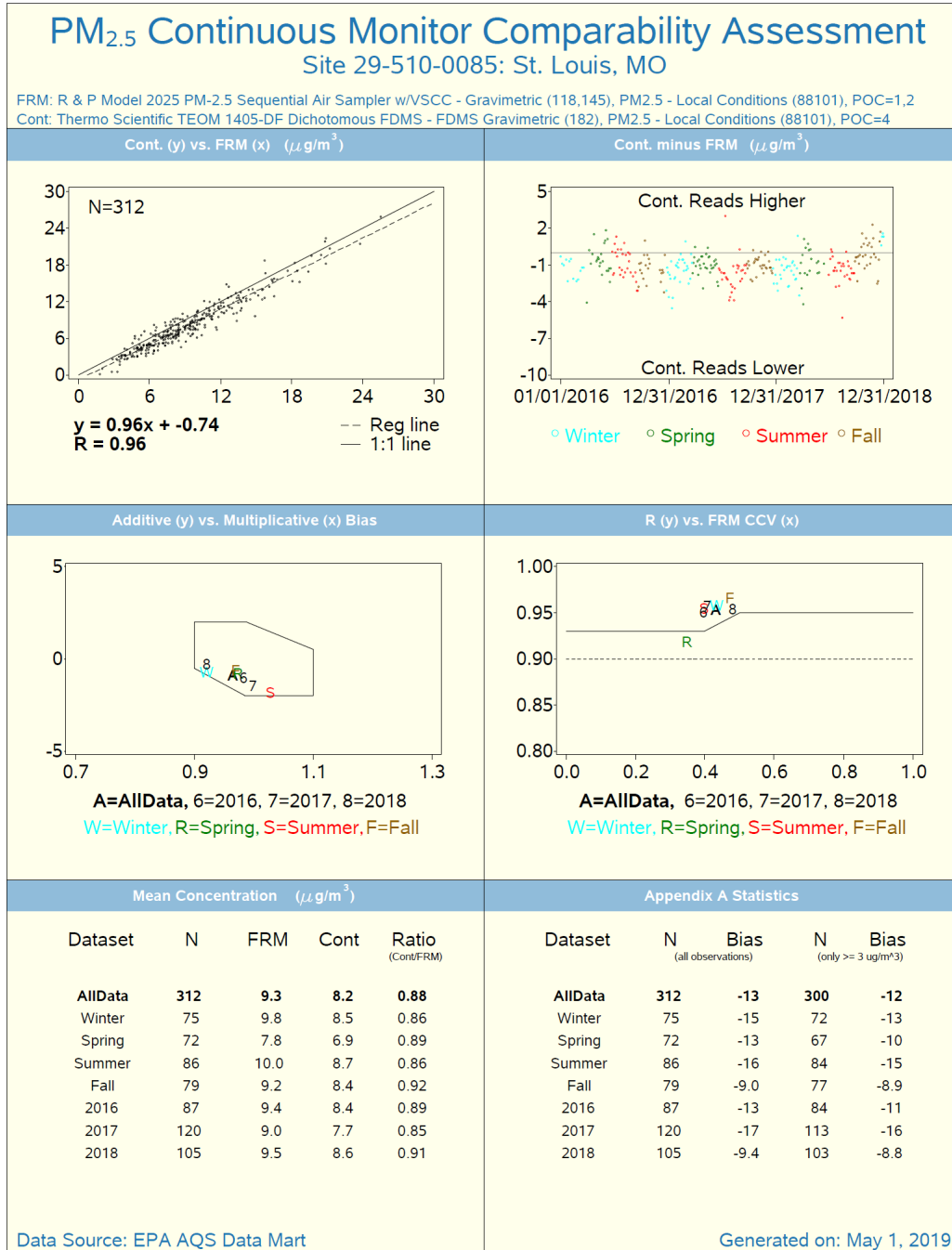
The "Revisions to Ambient Monitoring Quality Assurance and Other Requirements; Final Rule," (*Federal Register*, volume 81, number 59, March 28, 2016), effective April 27, 2016, removed the requirement for collocated monitoring for PM_{10-2.5} at NCore sites from 40 CFR Part 58. Therefore, operation of the collocated set of filter samplers used for measurement of PM_{10-2.5} was discontinued at the Blair Street site. At the same time, the TEOM-1405-DF FEM was re-

designated as the primary PM_{2.5} instrument at this site. The FRM PM_{2.5} sampler at Blair Street was re-designated as the collocated reporting FRM sampler for the state network, and also provides FRM PM_{2.5} for the NCore site. This change allowed the collocated FRM PM_{2.5} sampler at the Troost site to be discontinued. Effective July 1, 2018, PM_{10-2.5} is now being reported only at the Blair Street NCore site and the Forest Park and Blue Ridge I-70 near road sites. The current PM_{2.5} network is summarized in the table later in this section.

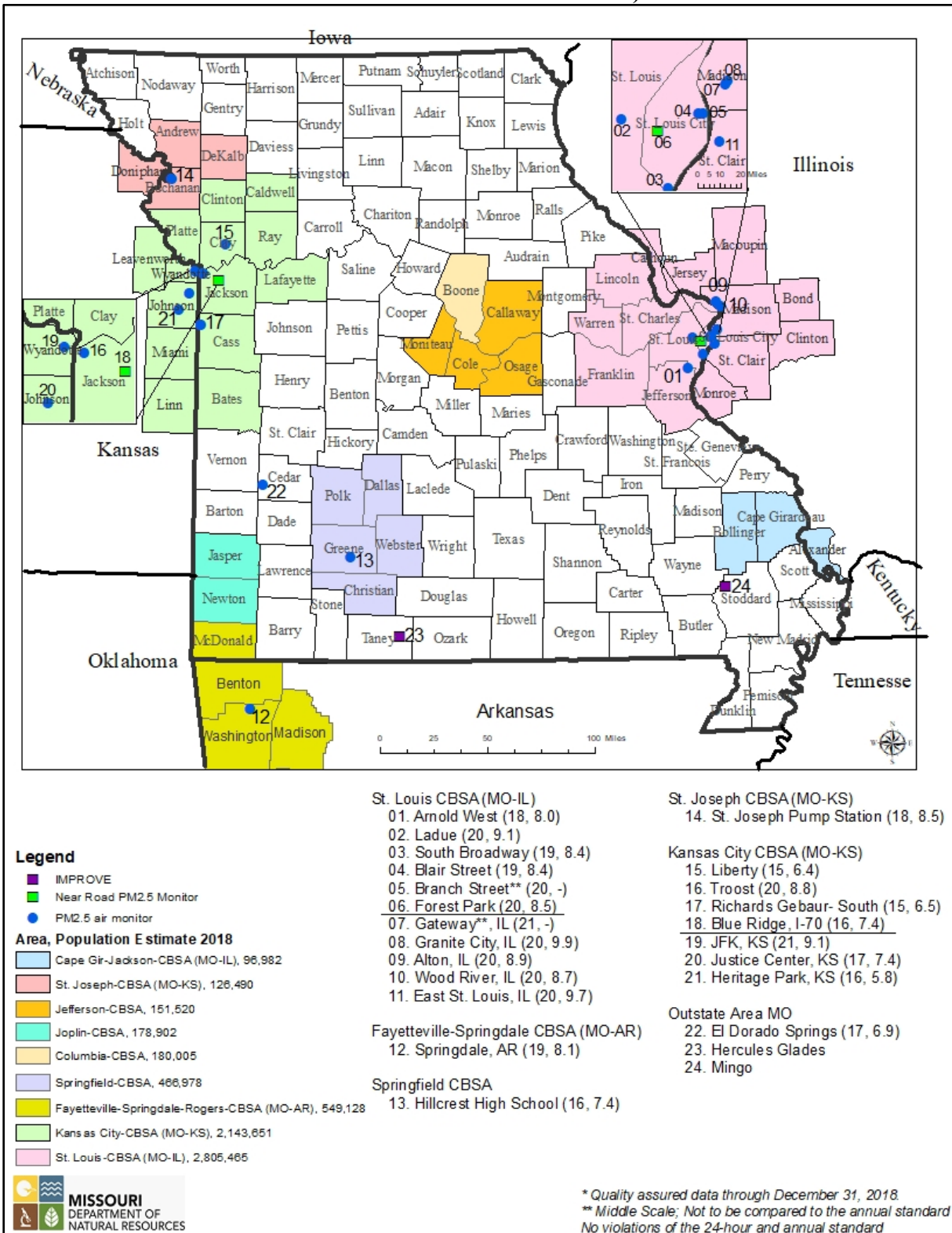
Two TEOM-1405-DF instruments are operated at the St. Joseph Pump Station site, one designated as primary, and one as collocated to satisfy the collocation requirement for that FEM method. The Department will continue to operate a 1405-F PM_{2.5} instrument and a collocated FRM at Ladue in part to evaluate the 1405-F for possible additional future use in the network.

The Department is also operating two Teledyne API 640x instruments at Blair Street and one at Troost as a special purpose monitor for PM₁₀ measurement and to evaluate this instrument, which measures airborne particulate concentration using light scattering, for possible future use in the PM_{2.5} network.

FRM/FEM Comparability Assessment
Blair Street, St. Louis, 2016-2018
from <https://www.epa.gov/outdoor-air-quality-data/pm25-continuous-monitor-comparability-assessments>



2019 Missouri PM_{2.5} Monitoring Network*, NAAQS=35 µg/m³ (24 hours), 12 µg/m³ (Annual). (Numbers in parentheses are 2016-2018 Design Values for the 24-hour and Annual standards)



*No changes to the PM_{2.5} network are proposed in this plan.

4.2 PM_{2.5} Chemical Speciation Network (CSN)

PM_{2.5} speciation sampling is currently conducted at two locations: Blair Street in St. Louis and Arnold West. The sampling schedule at Arnold West was modified to every six days in February 2015. Sampling is done every three days at Blair Street.

4.3 PM_{2.5} Section 103 Federal Funding

The Department is not proposing any changes to the PM_{2.5} monitoring network other than replacement of aging equipment. However, this plan is contingent on EPA providing adequate grant funds to operate and maintain the PM_{2.5} monitoring network.

40 CFR 58.14 (c) indicates that “State, or where appropriate, local agency requests for SLAMS monitor station discontinuation, subject to the review of the Regional Administrator, will be approved if any of the following criteria are met and if the requirements of appendix D to this part, if any, continue to be met. Other requests for discontinuation may also be approved on a case-by-case basis if discontinuance does not compromise data collection needed for implementation of a NAAQS and if the requirements of appendix D to this part, if any, continue to be met.” Consistent with 40 CFR 58.14(b), if reductions become necessary, the Department will provide written communication describing the network changes to the EPA regional administrator for review and approval.

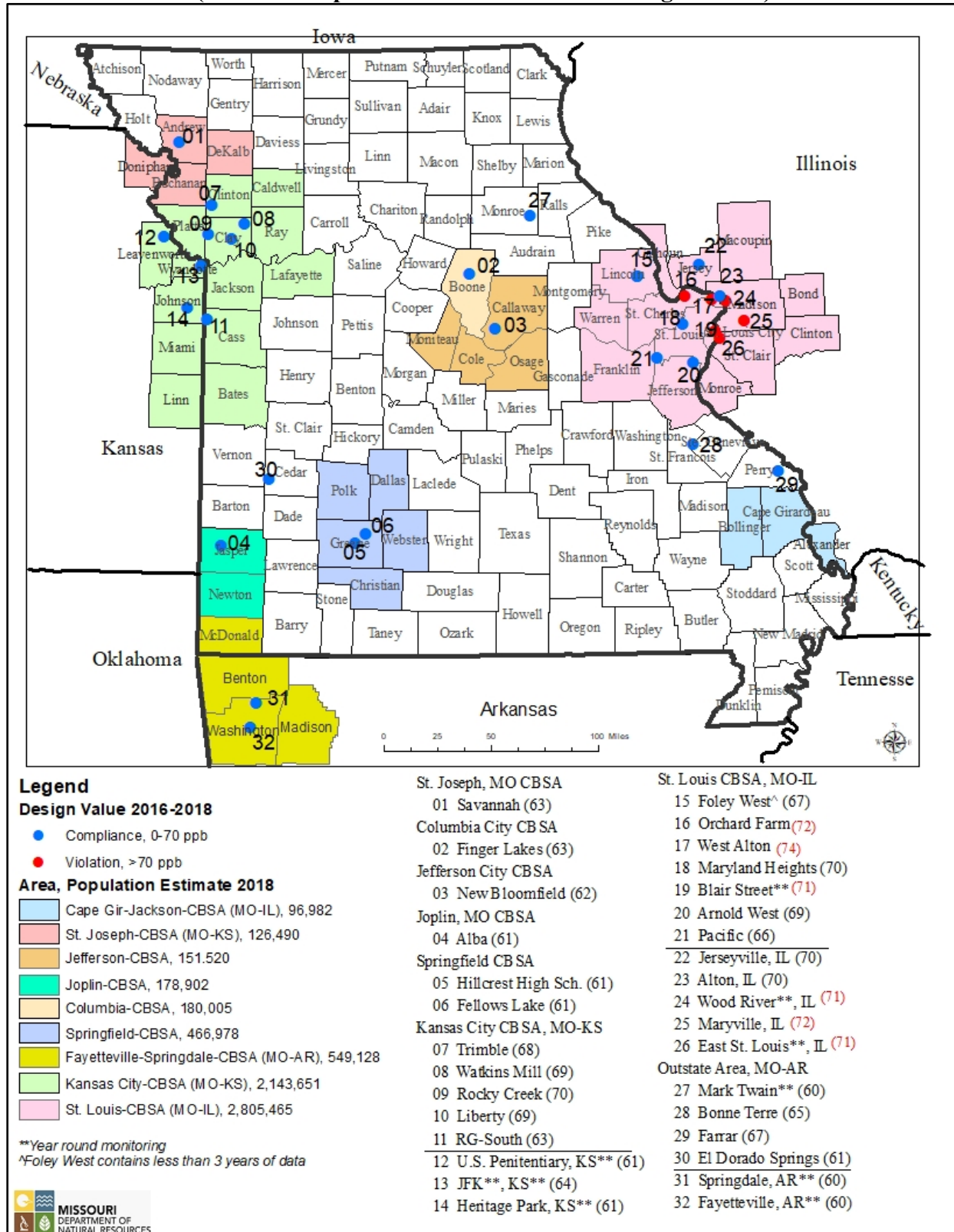
2019 Missouri PM_{2.5} Monitoring Network

Site	Schedule*	Type	Agency	Purpose
St. Louis				
1. Blair Street	3	Collocated FRM	ESP	Quality Assurance
	3	Speciation	ESP	Chemical Speciation Network
	H	TEOM-1405-DF FEM	ESP	24 hr Annual, NAAQS/AQI, Ncore, PM-10-2.5 continuous
	H	2 T640X PM Mass Monitor FEMs	ESP	Method Performance Evaluation/Research. Not for NAAQS Compliance Determination
2. Branch Street	H	TEOM-1405-DF FEM	ESP	24 hr NAAQS/AQI (unique middle scale monitor†)
3. Forest Park, I-64 (near-roadway)	H	TEOM-1405-DF FEM	ESP	24 hr & Annual/AQI, PM10-2.5 continuous (micro scale monitor)
4. South Broadway	H	TEOM-1405-DF FEM	ESP	24 hr & Annual NAAQS/AQI
5. Ladue	H	TEOM-1405-F FEM	ESP	24 hr & Annual NAAQS/AQI
	6	Collocated FRM	ESP	Quality Assurance
6. Arnold West	6	Speciation	ESP	Chemical Speciation Network
	H	TEOM-1405-DF FEM	ESP	24 hr & Annual NAAQS/AQI
Kansas City				
7. Liberty	H	TEOM-1405-DF FEM	ESP	24 hr & Annual NAAQS/AQI
8. Troost	H	TEOM-1405-F FEM	ESP	24 hr & Annual NAAQS/AQI
	H	T640X PM Mass Monitor FEM	ESP	Method Performance Evaluation/Research. Not for NAAQS Compliance Determination
9. Blue Ridge I-70 (near-roadway)	H	TEOM-1405-DF FEM	ESP	24 hr & Annual/AQI, PM10-2.5 continuous (micro scale monitor)
10. Richards-Gebaur South	H	TEOM-1405-DF FEM	ESP	24 hr & Annual NAAQS/AQI
Springfield				
11. Hillcrest High School	H	TEOM-1405-DF FEM	ESP	24 hr & Annual NAAQS/AQI
Outstate				
12. St. Joseph Pump Station	H	TEOM-1405-DF FEM	ESP	24 hr & Annual NAAQS/AQI
	H	Collocated TEOM-1405-DF FEM	ESP	Quality Assurance
13. El Dorado Springs	H	TEOM-1405-DF FEM	ESP	24 hr & Annual/AQI
14. Mingo	3	IMPROVE	Fish & Wildlife Service	Chemical Speciation Network
15. Hercules Glades	3	IMPROVE	Forest Service	Chemical Speciation Network
* 3 = Every third day; 6 = Every sixth day; H = Continuous monitoring, hourly data reported.				
† The Branch St. Monitor is a unique middle scale impact site and not eligible for comparison to the Annual PM _{2.5} NAAQS consistent with 40 CFR 58.30.				

5. Ozone Monitoring Network

There are no planned changes to the ozone monitoring network, and ozone monitoring will continue all year at the Mark Twain State Park (MTSP) site to collect ozone background concentrations need for Prevention of Significant Deterioration (PSD) modeling projects and at Blair Street to meet the NCore ozone monitoring requirement. The current monitoring network is based on the current ozone standard and ground-level ozone air quality monitoring network design requirements. The current ozone monitoring network meets the population-based requirements in 40 CFR 58 Appendix D, which requires a minimum of two sites each in the St. Louis, Kansas City, and Springfield areas. The ozone monitoring requirement for the Fayetteville-Springdale-Rogers CBSA is met by two ozone monitoring sites in Arkansas, since 96 percent of the population of that CBSA is in Arkansas and only 4 percent in Missouri.

**2019 Missouri Ozone (O₃) Monitoring Network*, NAAQS=70 ppb (8 hour).
(Numbers in parentheses are 2016-2018 Design Values)**



*No changes to the O₃ network are proposed in this plan.

6. PM₁₀ Monitoring Network

The Department discontinued collocated FRM PM₁₀ monitoring at the Blair Street in St. Louis in February 2018, because the FRM PM₁₀ measurement has been replaced as the primary measurement with the Teledyne API 640X instrument, so that collocation is no longer required. The Department is also discontinuing the other FRM PM₁₀ monitor at the Blair Street site effective July 1, 2019, because the Teledyne API 640X was designated as the primary PM₁₀ instrument and is also being used to report PMCoarse.

The Department discontinued all monitoring, including PM₁₀, at the Margarett site in St. Louis at the beginning of 2019. The St. Louis CBSA now includes four PM₁₀ sites (not including the microscale Forest Park site), more than enough to meet the minimum monitoring requirement of two to four sites specified in 40 CFR 58 Appendix D, 4.6. This monitor count includes the Granite City Fire Station site in Illinois, which is expected to continue based on communication received from the Illinois Environmental Protection Agency.

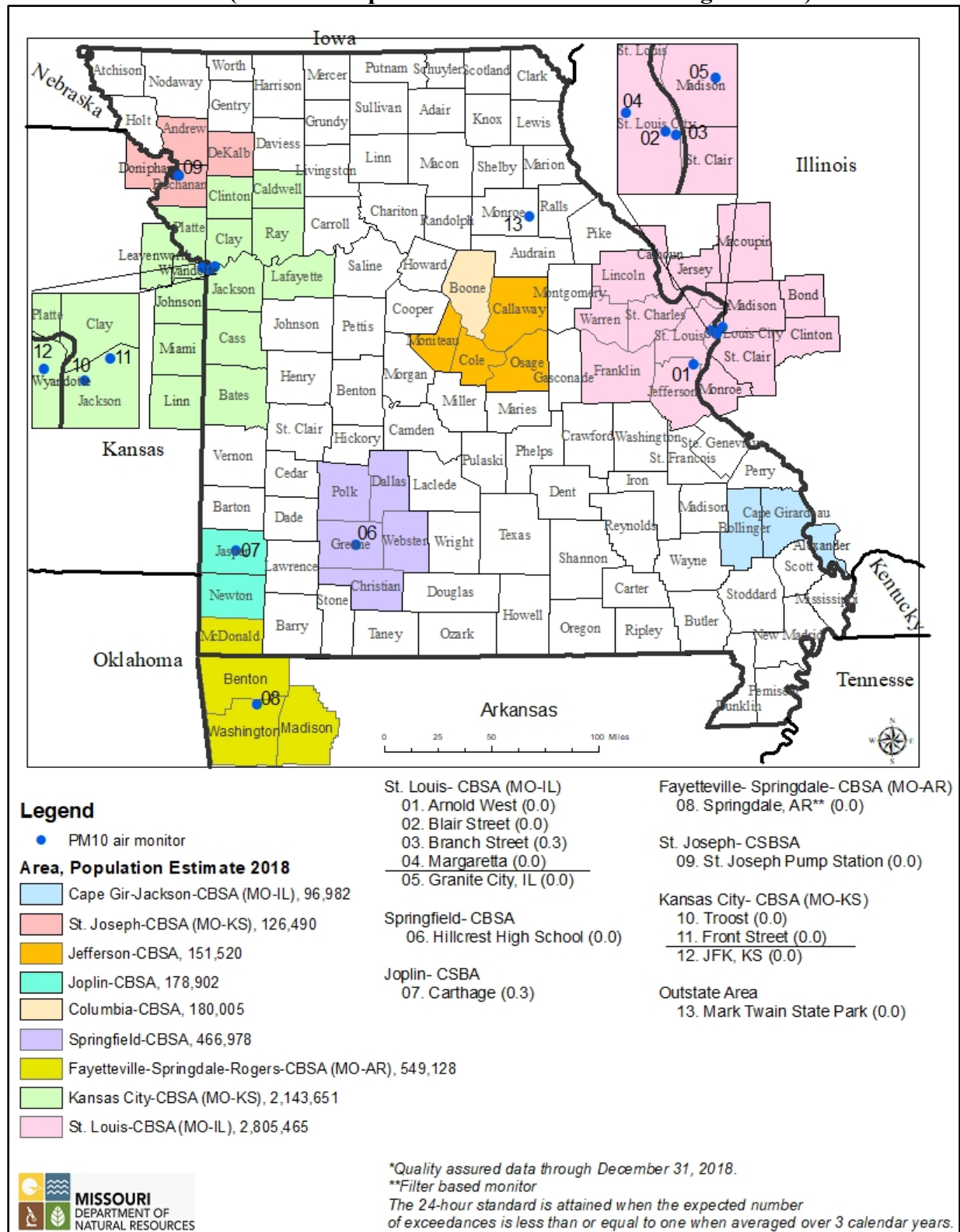
The Department has discontinued PM₁₀ monitoring with the TEOM 1405 at the Troost site in Kansas City. The PM₁₀ minimum monitoring requirement of two to four sites in the Kansas City CBSA will continue to be met by the Front Street site in Missouri and the JFK site in Kansas. The JFK site is expected to continue, because it is the NCore site for the Kansas City area. In February 2019, the Department began monitoring PM₁₀ and PM_{2.5} at Troost with a Teledyne API 640X instrument as a special purpose monitor for the purpose of ongoing evaluation of the performance of that instrument.

The PM₁₀ minimum monitoring requirement of zero to one in the Springfield CBSA is met by the Hillcrest High School site. The 2018 estimated population of the Springfield CBSA is 466,978. If this population increases to 500,000 or more, the requirement will increase to one to two sites and will continue to be met.

The 2018 estimated population of the Fayetteville-Springdale-Rogers CBSA is 549,128, but only 4 percent of this population (23,078) is in Missouri. Therefore, the PM₁₀ monitoring requirement for this area is best met by a monitoring site in Arkansas. Based on correspondence from the Arkansas Department of Environmental Quality, such a site was established on Jan. 1, 2017.

A collocated PM₁₀ TEOM-1400ab monitor was installed at the Carthage site in April 2016 and continues to operate because of the importance of that site as being near a potential source.

**2019 Missouri PM₁₀ Monitoring Network*, NAAQS=150 µg/m³ (24 hour).
(Numbers in parentheses are 2016-2018 Design Values)**



*The PM₁₀ FRM sampler at Blair St. is being discontinued effective July 2019. No other changes to the PM₁₀ network are proposed in this plan.

7. Nitrogen Dioxide (NO₂) Monitoring Network

The 2010 NO₂ NAAQS revision rule required near-road NO₂ monitoring at two sites in the St. Louis CBSA (population 2.8 million) and one site in the Kansas City CBSA (population 2.1 million), based on population and traffic count. The Department established the first St. Louis area site in January 2013, the Kansas City area site in July 2013, and the second near-roadway site in the St. Louis area in January 2015.

The first St. Louis area near-roadway site, Forest Park, is located adjacent to I-64 west of downtown St. Louis. Air monitoring results at that site are consistent with commuter traffic, heaviest on weekday mornings. The second St. Louis area site, called Rider Trail S. I-70, is adjacent to Interstate 70 just west of Interstate 270. Interstate 70 extends across the United States and carries through traffic in addition to commuter traffic and other local traffic. Therefore, the fleet mix and congestion patterns relative to time of day and day of the week are expected to be different than at the first site

The community-wide monitoring network requirement of 40 CFR 58 Appendix D, 4.3.3(a) in CBSAs with population larger than 1 million is satisfied by the Troost site in Kansas City and the Blair Street site in St. Louis and exceeded if the JFK site in Kansas and the East St. Louis site in Illinois are also considered.

40 CFR 58, Appendix D, 4.3.4 includes the following additional requirement for NO₂ monitoring:

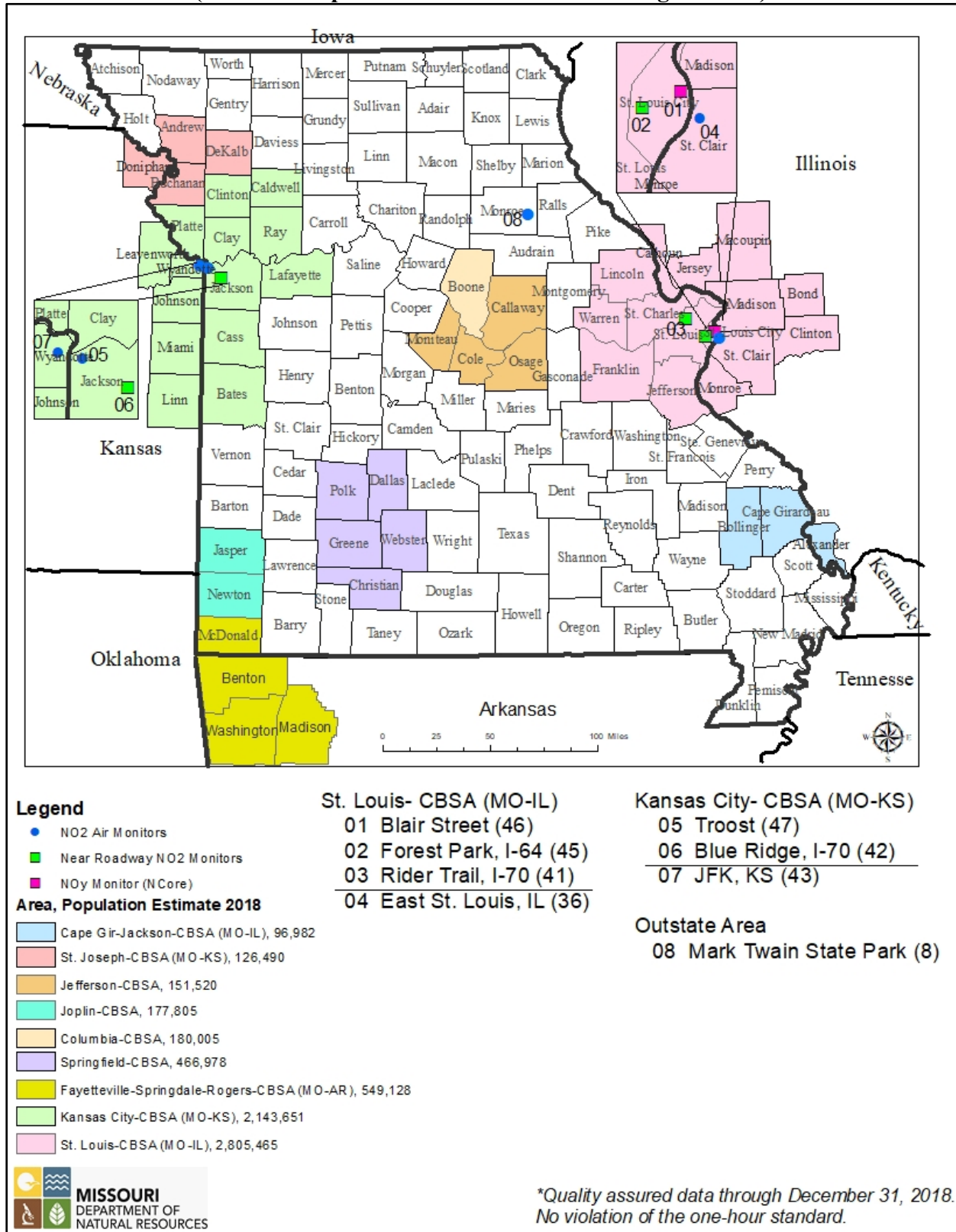
“4.3.4 Regional Administrator Required Monitoring

1. The Regional Administrators, in collaboration with States, must require a minimum of forty additional NO₂ monitoring stations nationwide in any area, inside or outside of CBSAs, above the minimum monitoring requirements, with a primary focus on siting these monitors in locations to protect susceptible and vulnerable populations....”

The Department discontinued NO₂ monitoring at the Margarett site at the beginning of 2019 and requested that EPA designate the Blair Street site as being in an area where susceptible and vulnerable populations live, work, and play, and therefore meeting this requirement.

The Department is operating a photolytic NO₂ monitor at the Blair Street site. Photolytic NO₂ monitoring is identified in EPA’s long term monitoring strategy, and this monitoring supplements the required NO_y monitoring being conducted at the Blair Street NCore site. The photolytic NO₂ monitor at Blair Street will also satisfy the requirement for true NO₂ monitoring as part of the PAMS program (see Section 9).

**2019 Missouri Nitrogen Dioxide (NO₂) Monitoring Network*, NAAQS=100 ppb (1 hour).
(Numbers in parentheses are 2016-2018 Design Values)**

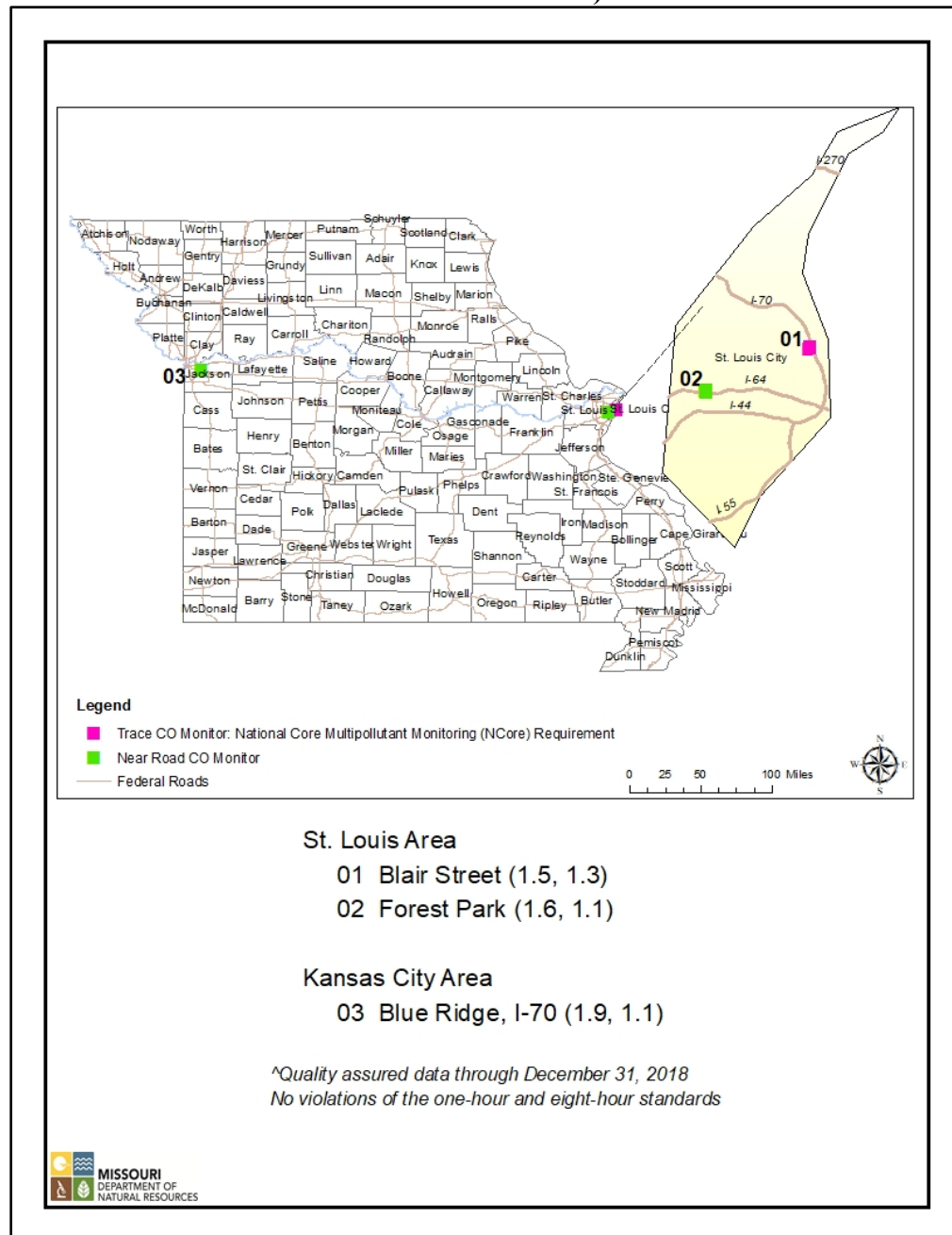


*No changes to the NO₂ network are proposed in this plan.

8. Carbon Monoxide (CO) Monitoring Network

The 2013 NAAQS rule for CO requires near-road CO monitoring at one site in the St. Louis CBSA. The Department established CO monitoring sites at the same time as the NO₂ monitoring sites at the Forest Park I-40/64 and Blue Ridge I-70 near-roadway monitoring sites. No changes to the CO monitoring network are proposed in this plan.

2019 Missouri Carbon Monoxide (CO) Monitoring Network*, NAAQS=35 ppm (1 hour), 9 ppm (8 hour). (Numbers in parentheses are 2016-2018 Design Values for the 1-hour and 8-hour standards)



*No changes to the CO network are proposed in this plan.

9. Photochemical Assessment Monitoring Station Implementation Plan

9.1 Introduction: Regulatory Requirements and Guidance Documents

The “National Ambient Air Quality Standards for Ozone; Final Rule,” (*Federal Register*, volume 80, number 206, Oct. 26, 2015), included amendment of 40 CFR 58, Appendix D (5) to include the following:

“5. NETWORK DESIGN FOR PHOTOCHEMICAL ASSESSMENT MONITORING STATIONS (PAMS) AND ENHANCED OZONE MONITORING

1. State and local monitoring agencies are required to collect and report PAMS measurements at each NCore site required under paragraph 3(a) of this appendix located in a CBSA with a population of 1,000,000 or more, based on the latest available census figures.
2. PAMS measurements will include:
 - (1) Hourly averaged speciated volatile organic compounds (VOCs);
 - (2) Three 8-hour averaged carbonyl samples per day on a 1 in 3 day schedule, or hourly averaged formaldehyde;
 - (3) Hourly averaged O₃;
 - (4) Hourly averaged nitrogen oxide (NO), true nitrogen dioxide (NO₂), and total reactive nitrogen (NO_y);
 - (5) Hourly averaged ambient temperature;
 - (6) Hourly vector-averaged wind direction;
 - (7) Hourly vector-averaged wind speed;
 - (8) Hourly average atmospheric pressure;
 - (9) Hourly averaged relative humidity;
 - (10) Hourly precipitation;
 - (11) Hourly averaged mixing-height;
 - (12) Hourly averaged solar radiation; and
 - (13) Hourly averaged ultraviolet radiation...

(g) At a minimum, the monitoring agency shall collect the required PAMS measurements during the months of June, July, and August.”

The same rule included amendment of 40 CFR 58.10 (a) (10) to include the following:

“A plan for making Photochemical Assessment Monitoring Stations (PAMS) measurements, if applicable, in accordance with the requirements of appendix D paragraph 5(a) of this part shall be submitted to the EPA Regional Administrator no later than July 1, 2018. The plan shall provide for the required PAMS measurements to begin by June 1, 2019.”

Primarily because of delays in national procurement of some of the required equipment for PAMS measurement, EPA has proposed a revision to this regulation that will change the required start date for PAMS measurement to June 1, 2021 (Federal Register, volume 84, number 105, May 31, 2019, page 25221). EPA has recommended that the following paragraph be included in monitoring network plans to reference this change; that paragraph is included here without change except for insertion of the Missouri Department of Natural Resources as the monitoring agency and identification of the monitoring site.

“Based on 40 CFR part 58, Appendix D, State air monitoring agencies are required to begin making PAMS measurements at their NCore location(s) by June 1, 2019. The equipment needed to measure PAMS parameters were to be purchased by USEPA using a nationally negotiated contract and delivered to the monitoring agencies. USEPA has announced that due to contract delays, the necessary equipment will not be delivered in time to begin making PAMS measurements by June 1, 2019. USEPA has indicated that it is working on a proposed rule to extend the start date of PAMS measurements and expects that this proposed rule change will be signed by June 1, 2019. As a result of the delay the Missouri Department of Natural Resources will not begin making PAMS measurements at the Blair Street St. Louis NCore location in 2019, and will work with EPA to begin measurements on or before the final revised start date for this network.”

EPA has published a guidance document entitled *PAMS Required Sites Quality Assurance Implementation Plan [QAIP]*, October 2016, https://www3.epa.gov/ttn/amtic/files/ambient/pams/PAMS%20Quality%20Assurance%20Implementation%20Plan_092716_V4.0.pdf. The QAIP provides guidance for both EPA and monitoring organizations in implementation of the above-referenced PAMS requirements. The QAIP includes the following recommendations:

“Monitoring organization PAMS Implementation Plan: The monitoring organization Implementation Plan document will specify how the monitoring organization will perform the measurements for the Required Network. The plan will include details on activities such as monitoring site location, costs, and schedule of events, among other information. The plan will also include any waivers to siting or monitoring methods.” (page 13)

“Monitoring organizations should have their PAMS waivers and Required Network Implementation Plans finalized by July 2017 and must have them completed by the end of October 2017.”²⁰

²⁰ The regulation requires that monitoring organization Required Network IPs be developed in their Annual Network Plans due July 2018. However, in order to be operational by June 2019, it would be beneficial to have plans finalized by the end of October 2017.” (page 21)

EPA has provided additional guidance including a PAMS Technical Assistance Document (TAD) and a model Quality Assurance Project Plan (QAPP), both finalized in June 2019, and draft standard operating procedures for some of the instrument systems. EPA also conducts monthly conference calls to disseminate information and guidance on PAMS monitoring.

This section of the 2018 Monitoring Network Plan was intended to fulfill the regulatory requirement in 40 CFR 58.10 (a) (10) for submittal of a PAMS implementation plan by July 2018. An earlier version of this section was included in the 2017 Monitoring Network Plan to meet the recommended schedule in the QAIP for submittal of the plan by July 2017 in advance of the regulatory requirement. The current version of this section has been revised to reflect the schedule delays, pending regulatory changes, and EPA guidance identified above.

9.2 PAMS Measurements

The Department will conduct PAMS monitoring at the Blair Street Station in St. Louis. The Blair Street Station is an NCore site in a CBSA with a population of greater than 1 million. The NCore site in the Kansas City CBSA is in Kansas City, Kansas. Accordingly, it is expected that PAMS monitoring in the Kansas City CBSA will be conducted by the state or local agency responsible for operation of that site.

PAMS monitoring will begin at Blair Street by June 1, 2021 and will be conducted during the months of June, July, and August each year as long as the regulatory requirements are in place and funding is available to support this activity.

The Department does not plan to request any of the waivers from EPA described in 40 CFR 58, Appendix D (5) (c) through (f).

Each of the required measurements in 40 CFR 58, Appendix D (5) (b) is discussed below.

1. Hourly averaged speciated volatile organic compounds (VOCs). EPA has evaluated several gas chromatographs (GC) designed to measure concentrations of hourly average speciated VOCs. EPA is developing contracts with two of the vendors of these GC systems and plans to provide an instrument from one of the vendors to each monitoring organization that is required to conduct PAMS monitoring and chooses to acquire the GC system through one of the EPA contracts. Based on information available at this time, the Department has selected the Consolidated Analytical Systems (CAS)/Chromatotec AirmOzone Auto-Gas Chromatograph with Flame Ionization Detection. Use of this system will also require procurement and installation of additional equipment and supplies, including a sampling manifold, zero air supply, gas dilution calibrator, calibration gas and associated regulators, and data logger. This list will be refined and become more detailed as more information becomes available. This element of the required PAMS measurements is clearly the one that will require the most planning and preparation and will be the most labor-intensive during each summer measurement season.

The following table lists target compounds for this measurement (carbonyl compounds included in the table will be measured in samples described under 2 below).

2. Three 8-hour averaged carbonyl samples per day on a 1 in 3 day schedule, or hourly averaged formaldehyde. The Department will procure, install, and use a sampler capable of collecting multiple 8-hour samples using derivatized sorbent tubes according to EPA method TO-11A. An example of such a sampler is the ATEC 8000 series. The Department is not aware

of an instrument currently available at reasonable cost that reliably measures hourly-averaged formaldehyde; this provision was likely written into the regulation in anticipation of future instrument development. Analysis of TO-11A samples for the carbonyls listed in the following table (identified by footnote b) will be made available by EPA using their national contract analytical laboratory.

Revised PAMS Target List^a

Existing Priority Compounds	Optional Compounds
1,2,3-Trimethylbenzene	1,3 Butadiene
1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
1-Butene	1-Pentene
2,2,4-Trimethylpentane	2,2-Dimethylbutane
Acetaldehyde ^b	2,3,4-Trimethylpentane
Benzene	2,3-Dimethylbutane
Cis-2-Butene	2,3-Dimethylpentane
Ethane	2,4-Dimethylpentane
Ethylbenzene	2-Methylheptane
Ethylene	2-Methylhexane
Formaldehyde ^b	2-Methylpentane
Isobutane	3-Methylheptane
Isopentane	3-Methylhexane
Isoprene	3-Methylpentane
M/P Xylene	Acetone
M-Ethyltoluene	Acetylene
N-Butane	Alpha Pinene
N-Hexane	Benzaldehyde ^b
N-Pentane	Beta Pinene
O-Ethyltoluene	Cis-2-Pentene
O-Xylene	Carbon Tetrachloride
P-Ethyltoluene	Cyclohexane
Propane	Cyclopentane
Propylene	Ethanol
Styrene	Isopropylbenzene
Toluene	M-Diethylbenzene
Trans-2-Butene	Methylcyclohexane
	Methylcyclopentane
	N-Decane
	N-Heptane
	N-Nonane
	N-Octane
	N-Propylbenzene
	N-Undecane
	P-Diethylbenzene
	Tetrachloroethylene
	Trans-2-Pentene

^a This table only includes individual target compounds. Monitoring agencies should continue measuring and reporting total non-methane organic compounds (TNMOC)

^b These compounds are carbonyls and are measured using Method TO-11a

Source: <https://www3.epa.gov/ttn/amtic/files/ambient/pams/targetlist.pdf>

3. Hourly Averaged O₃. Hourly averaged ozone is already measured at Blair Street as a part of the NCore requirements and will continue.

4. Hourly averaged nitrogen oxide (NO), true nitrogen dioxide (NO₂), and total reactive nitrogen (NO_y). NO and NO_y are already measured at Blair Street as a part of the NCore requirements and will continue. True NO₂ is already measured at Blair Street using an analyzer with a photolytic NO₂ converter; this measurement will also continue.

5. -10. Hourly averaged ambient temperature, hourly vector-averaged wind direction, hourly vector-averaged wind speed, hourly average atmospheric pressure, hourly averaged relative humidity, and hourly precipitation. Temperature, wind direction, wind speed, atmospheric pressure, and relative humidity are already measured at Blair Street and will continue. The Department will procure, install and use a precipitation measurement instrument.

11. Hourly averaged mixing height. EPA plans to develop a national contract with one or more vendors of ceilometers, which are instruments using a laser to measure mixing height, and provide an instrument to each monitoring organization that is required to conduct PAMS monitoring. Based on information available at this time, the Department expects that the ceilometer to be installed and used is likely to be a Vaisala CL-51 with appropriate software. EPA acquisition of ceilometers is not expected to occur until at least Federal fiscal year 2020. Therefore, the mixing height measurement is also not expected to begin in June 2019.

12. Hourly averaged solar radiation. Solar radiation is already measured at Blair Street and will continue.

13. Hourly averaged ultraviolet radiation. The Department will procure, install and use an ultraviolet radiation measurement instrument.

9.3 PAMS Implementation Schedule and Resource Requirements

The following table lists some of the major schedule elements associated with implementation of PAMS measurement and tentative starting and ending dates (month and year) for each activity. It is based on the QAIP referenced above and associated information from EPA, including information provided during regular PAMS conference calls, and includes relevant activities planned by EPA. As noted in the table, timing of some of the schedule elements, especially capital equipment acquisition, depends on availability of funding and availability of instrumentation from national contracts. This schedule reflects the delays described above and is subject to additional change as the progress of elements in the schedule continues to evolve.

Personnel resource and cost estimates for this activity are being developed by the Department and will be communicated separately to EPA Region 7 staff.

Tentative PAMS Implementation Schedule

	Start	Finish
QA Related Tasks		
EPA: PAMS TAD and Auto GC SOPs and workgroup review/iteration/comment	2/17	5/19
EPA: PAMS generic QAPP and SOPs (NO ₂ , ceilometer, carbonyl sampling/analysis) and review/iteration/comment	7/17	5/19
EPA: PAMS proficiency testing (PT) and TSA program development and review/iteration/comment	11/17	7/19
EPA: Development of quality control/PT reports	4/18	9/19
Department: Draft PAMS QAPP and SOPs	12/17	12/20
EPA (Region VII): Review QAPP and SOPs	12/20	3/21
Department: Finalize QAPP and SOPs	3/21	5/21
EPA: TSA audit training/readiness reviews	10/18	3/21
EPA: Proficiency testing on operational sites/labs	10/18	5/19
Implementation Tasks		
Department: Implementation plan development (this plan)	1/17	6/19
Department: Personnel resource and cost estimate planning and development	1/17	12/20
Department: Continue to participate in monthly PAMS conference calls and review guidance documents as available	1/17	5/21
EPA and Department: Capital equipment acquisition from national contract (GC and ceilometer; depends on EPA schedule)	11/17	12/20
Department: Other equipment and supplies acquisition (depends on funding availability)	7/19	4/21
Department: Equipment installation	1/21	4/21
Department: Equipment shakedown/testing	4/21	5/21
Department: First PAMS measurement season	6/21	8/21

NETWORK DESCRIPTION/COMPONENTS

See Appendix 1 for the Network Description, which includes the following components:

Site Data

All ambient air monitoring sites are recorded in the EPA's Air Quality System (AQS) database. Data includes location data such as latitude and longitude.

AQS Site Code

The site code includes a numerical designation for state, county and individual site. The state and county codes are assigned a number based on the alphabetical order of the state or county. Site numbers are assigned sequentially by date established in most counties. St. Louis County sites also have a division for municipality within St. Louis County.

Street Address

The official post office address of the lot where the monitors are located. Because not all sites are located in cities or towns, the street address is occasionally given as the intersection of the nearest streets or highways.

Geographical Coordinates

The coordinate system used by the Department is latitude and longitude.

Air Quality Control Region

Air Quality Control Regions (AQCR) are defined by EPA and designate either urban regions, like St. Louis or Kansas City, or rural sections of a state, such as northeast or southwest Missouri.

AQCR	AQCR Name
070	Metropolitan St. Louis
094	Metropolitan Kansas City
137	Northern Missouri
138	Southeast Missouri
139	Southwest Missouri

Core Based Statistical Area

Core Based Statistical Areas (CBSA) are defined by the U.S. Census Bureau.

CBSA Code	CBSA Name
00000	Not in a CBSA
16020	Cape Girardeau-Jackson, Missouri-Illinois
17860	Columbia, Missouri
22220	Fayetteville-Springdale-Rogers, Arkansas-Missouri
27620	Jefferson City, Missouri
27900	Joplin, Missouri
28140	Kansas City, Missouri-Kansas
41140	St. Joseph, Missouri-Kansas

41180	St. Louis, Missouri-Illinois
44180	Springfield, Missouri

Monitor Data

Each monitor is designed to detect a specific chemical pollutant or group of related pollutants. A site may have one or many monitors and not all sites will have the same monitors.

Pollutant

The common name of the pollutant. Criteria pollutants are defined by statute in the Clean Air Act.

AQS Pollutant Code

Each pollutant has a unique numerical code.

Pollutant Code	Pollutant
14129	Lead – Local Conditions (LC)
42101	Carbon Monoxide
42401	Sulfur Dioxide
42406	Sulfur Dioxide 5-minute
42600	Reactive Oxides of N (NOY)
42601	Nitric Oxide
42602	Nitrogen Dioxide
42603	Oxides of Nitrogen
44201	Ozone
61103	Resultant Wind Speed
61104	Resultant Wind Direct
62101	Outdoor Temperature
62107	Indoor Temperature
62201	Relative Humidity
63301	Solar Radiation
64101	Barometric Pressure
68105	Average Ambient Temperature
68108	Sample Barometric Pressure
81102	PM ₁₀
88313	Black Carbon-LC
85101	PM ₁₀ – LC
85129	Lead PM ₁₀ LC - FRM/FEM
86101	PMCoarse – LC (FRM Difference)
88101	PM _{2.5} FRM
88500	PM _{2.5} Total Atmospheric
88502	PM _{2.5} AQI/Speciation
88503	PM _{2.5} Reference
61106	Sigma Theta
62106	Temperature Difference
65102	Precipitation
88314	UV Carbon PM _{2.5} -Local Condition

85102	Antimony
85103	Arsenic PM ₁₀ LC
85107	Barium PM ₁₀ LC
85109	Bromine PM ₁₀ LC
85110	Cadmium PM ₁₀ LC
85111	Calcium PM ₁₀ LC
85112	Chromium PM ₁₀ LC
85113	Cobalt PM ₁₀ LC
85114	Copper PM ₁₀ LC
85126	Iron PM ₁₀ LC
85128	Lead PM ₁₀ LC
85132	Manganese PM ₁₀ LC
85136	Nickel PM ₁₀ LC
85142	Mercury PM ₁₀ LC
85154	Selenium PM ₁₀ LC
85160	Tin PM ₁₀ LC
85161	Titanium PM ₁₀ LC
85164	Vanadium PM ₁₀ LC
85166	Silver PM ₁₀ LC
85167	Zinc PM ₁₀ LC
85173	Thallium PM ₁₀ LC
85180	Potassium PM ₁₀ LC
88160	Tin PM ₁₀ LC
	Organic Carbon Chemical Speciation Network Unadjusted
88305	PM _{2.5} LC TOT
88312	Total Carbon PM _{2.5} LC TOT
88316	Optical Elemental Carbon PM _{2.5} LC TOT

Parameter Occurrence Code

The Parameter Occurrence Code (POC) distinguishes between different monitors for the same pollutant, most often collocated monitors used for precision and quality assurance. For PM_{2.5}, different parameter occurrence codes are assigned to FRM, collocated FRM, continuous, and speciation monitors.

Collocated

Collocated monitors are used for precision and quality assurance activities, and for redundancy for critical pollutants such as ozone.

Sampling Frequency

Sampling frequency varies for each pollutant, depending on the nature of the NAAQS standard and the technology used in the monitoring method. Most gaseous pollutants, PM_{2.5} and PM₁₀ monitors use continuous monitoring FEM methods and are averaged over one hour. Some particulate pollutants are filter-based FRM methods and averaged over one day.

Scale of Representation

Each monitor is intended to represent an area with similar pollutant concentration. The scales range from only a few meters to many kilometers.

- MIC Microscale** - defines the concentration in air volumes associated with area dimensions ranging from several meters up to about 100 meters.
- MID Middle** - defines the concentration typical of areas up to several city blocks in size with dimensions ranging from about 100 meters to 0.5 kilometers.
- NBR Neighborhood** - defines concentrations within an extended area of a city that has relatively uniform land use with dimensions in the 0.5 to 4.0 kilometers.
- URB Urban** - defines an overall citywide condition with dimensions on the order of 4 to 50 kilometers.
- REG Regional** - defines air quality levels over areas having dimensions of 50 to hundreds of kilometers.

Monitor Type/Network Affiliation

The monitor's administrative classification is determined by the purpose for the monitor in the agency sampling strategy. Assignment of monitor types “NCORE” and “PAMS” is limited to EPA headquarters and is done only after a complete review and approval for all site/monitor metadata.

Code	Description
IMPROVE	IMPROVE or IMPROVE Protocol
INDEX SITE	(not currently used by Missouri)
INDUSTRIAL	Used to indicate sites operated by an industry Primary Quality Assurance Organization (PQAO)
NATTS	National Air Toxics Trends Station
NEAR ROAD	Near Road monitoring station
NCORE	National Core monitoring station
NON-EPA FEDERAL	(not currently used by Missouri)
NON-REGULATORY	Not used for NAAQS Compliance
PAMS	Photochemical Assessment Monitoring Stations
PROPOSED NCORE	Proposed NCore
QA COLLOCATED	Collocated to Satisfy 40 CFR 58 Appendix A
SLAMS	State or Local Air Monitoring Station
SPECIAL PURPOSE	Special Purpose Monitoring Station (SPM or SPMS)
SUPLMNTL SPECIATION	Supplemental Speciation
TRENDS SPECIATION	Trends Speciation
TRIBAL MONITORS	(not currently used by Missouri)
UNOFFICIAL PAMS	(not currently used by Missouri)

State Monitoring Objective

Each monitor has a distinct objective such as providing real-time data for public awareness or use in determining compliance with regulations. The state monitoring objective provides more information about the purpose of the monitoring in addition to the monitor objective required of 40 CFR 58.10(a)(6).

State Objective	Code Objective
AQI	Public Information
COM	NAAQS Compliance
MET	Meteorological Data
RES	Research
SIP	State Implementation Plan
SPP	Special Purpose Project
STA	State Standard

Units

The physical terms used to quantify the pollutant concentration, such as parts per million or micrograms per cubic meter.

Unit Code	Unit Description
001	$\mu\text{g}/\text{m}^3$
007	parts per million
008	parts per billion
011	meters per second
012	miles per hour
013	knots
014	degree, compass
015	degree Fahrenheit
016	millibars
017	degree Celsius
018	Langleys
019	percent humidity
021	inches
022	inches Mercury
025	Langleys per minute
059	Millimeter (Mercury)
073	Liters/minute STP-Flow
077	Micrograms
079	Watts/ m^2
083	Cubic meter/minute
105	$\mu\text{g}/\text{m}^3$ LC
106	Minutes
107	Percent
118	Liters/minute LC-Flow
119	Cubic meters/minute LC-Flow
121	parts per trillion

Monitoring/Analytical Method

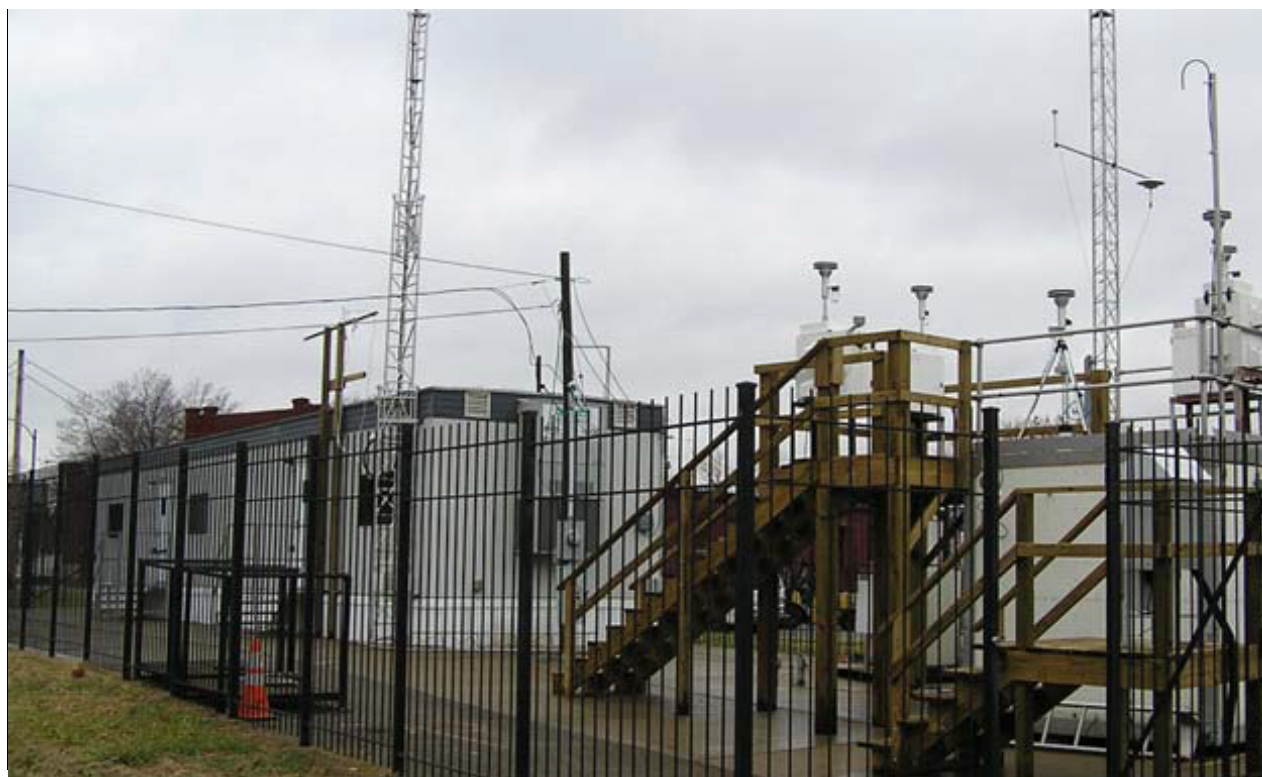
Each monitor relies on a scientific principle to determine the pollutant concentration, which is described by the sampling method. Each method code is specific for a particular pollutant; therefore a three numeral code may be used for different methods for different pollutants. This is required by 40 CFR 58.10(a)(3).

Monitoring Objective

This is the primary monitoring objective(s) for the monitoring parameter required by 40 CFR 58.10(a)(6). The monitoring objective is specific to the pollutant. Some sites may have more than one monitoring objective, but the primary objective is listed first.

APPENDIX 1: MISSOURI MONITORING NETWORK DESCRIPTION

Missouri Ambient Air Monitoring Network



MIC	Microscale	Several meters up to about 100 meters
MID	Middle	100 meters to 0.5 kilometer
NBR	Neighborhood	0.5 to 4.0 kilometers range
URB	Urban	4 to 50 kilometers
REG	Regional	Tens to hundreds of kilometers
COM	National Ambient Air Quality Standards (NAAQS) Compliance	
MET	Meteorological Data	
N/A	Not Applicable	
NCore	National Multi-Pollutant Monitoring Stations	
NON-A	Non-Ambient Site	
NON-R	Non-Regulatory	
PQAO	Primary Quality Assurance Organization	
RES	Research	
SLAMS	State and Local Monitoring Stations	
SIP	State Implementation Plan	
SPEC	Speciation	
STA	State Standard	
SPM	Special Purpose Monitoring	
SPP	Special Purpose Project	
Coll	Collocated monitor. A secondary monitor at a site.	

Ameren Missouri (PQAO - 1440)

Labadie "Plant" Site

AQS Site Number **29-071-9003**

~1.5 km south of the Labadie Energy Center, Labadie, MO 63055

Latitude: 38.5486 **AQCR:** 070 Metropolitan St. Louis

Longitude: -90.83725 **MSA:** 7040 St. Louis, MO-IL

Elevation (ft): 680

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC</i>	<i>Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State-Obj</i>	<i>AQS Unit-Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
Std Dev Hz Wind Direction	61106	Industrial	1	<input type="checkbox"/>	1	N/A	MET	014	deg	127	Scintec MFAS Sodar/RASS Acoustic Sounder	Other (40m - 300m)
Temperature Virtual	62102	Industrial	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	128	Scintec MFAS Sodar/RASS Radar Profiler	Other (40m - 300m)
Wind Direction - Resultant	61104	Industrial	1	<input type="checkbox"/>	1	N/A	MET	014	deg	127	Scintec MFAS Sodar/RASS Acoustic Sounder	Other (40m - 300m)
Wind Speed - Resultant	61103	Industrial	1	<input type="checkbox"/>	1	N/A	MET	011	m/s	127	Scintec MFAS Sodar/RASS Acoustic Sounder	Other (40m - 300m)
WS - Sigma Theta (Vertical)	61110	Industrial	1	<input type="checkbox"/>	1	N/A	MET	011	m/s	127	Scintec MFAS Sodar/RASS Acoustic Sounder	Other (40m - 300m)

Labadie, North**AQS Site Number 29-183-9004**

~150 ft. north of Terry Rd and ~200 ft. Kingfisher Ct, Augusta, MO 63332

Latitude: 38.59557 **AQCR:** 070 Metropolitan St. Louis**Longitude:** -90.82864 **MSA:** 7040 St. Louis, MO-IL**Elevation (ft):** 816

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Sulfur Dioxide	42401	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	100	Ultra-violet Fluorescence	Source Oriented
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Sulfur Dioxide Max 5-min Avg	42406	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	100	Ultra-violet Fluorescence	Source Oriented
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Labadie, Northwest**AQS Site Number 29-183-9002**

Rt. 94, Augusta, MO 63332 near the intersection with Schlusburg Road

Latitude: 38.5818 **AQCR:** 070 Metropolitan St. Louis**Longitude:** -90.865528 **MSA:** 7040 St. Louis, MO-IL**Elevation (ft):** 550

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Outdoor Temperature	62101	Industrial	2	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (10m Probe Height)
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Outdoor Temperature	62101	Industrial	3	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (2m Probe Height)
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Outdoor Temperature Diff	62106	Industrial	1	<input type="checkbox"/>	1	N/A	MET	116	Temp Diff deg C	041	Instrumental: Elect or Mach Avg Lev 2-Lev1	Other (10m - 2m Probe Heights)
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Relative Humidity	62201	Industrial	1	<input type="checkbox"/>	1	N/A	MET	019	%humidity	061	Met One 083D	Other
Std Dev Hz Wind Direction	61106	Industrial	1	<input type="checkbox"/>	1	N/A	MET	014	deg	063	Arithmetic Standard Deviation	Other (10m Tower)
Std Dev Vt Wind Direction	61107	Industrial	1	<input type="checkbox"/>	1	N/A	MET	014	deg	020	Arithmetic Standard Deviation	Other (10m Tower)
Sulfur Dioxide	42401	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	100	Ultra-violet Fluorescence	Source Oriented
Sulfur Dioxide Max 5-min Avg	42406	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	100	Ultra-violet Fluorescence	Source Oriented
Wind Direction - Resultant	61104	Industrial	1	<input type="checkbox"/>	1	N/A	MET	014	deg	020	Vector Summation	Other (10m Tower)
Wind Direction - Scalar	61102	Industrial	1	<input type="checkbox"/>	1	N/A	MET	014	deg	063	Climatronics	Other (10m Tower)
Wind Speed - Resultant	61103	Industrial	1	<input type="checkbox"/>	1	N/A	MET	011	m/s	020	Vector Summation	Other (10m Tower)
Wind Speed - Scalar	61101	Industrial	1	<input type="checkbox"/>	1	N/A	MET	011	m/s	063	Climatronics	Other (10m Tower)

Wind Speed - Vertical	61109	Industrial	1	<input type="checkbox"/>	1	N/A	MET	011	m/s	020	Electronic Averaging	Other (10m Tower)
WS - Sigma Theta (Vertical)	61110	Industrial	1	<input type="checkbox"/>	1	N/A	MET	011	m/s	020	Arithmetic Standard Deviation	Other (10m Tower)

Labadie, Southwest

AQS Site Number **29-071-9002**

870 Albertina Lane, Labadie, MO 63055

Latitude: 38.52825 **AQCR:** 070 Metropolitan St. Louis

Longitude: -90.86301 **MSA:** 7040 St. Louis, MO-IL

Elevation (ft): 630

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
Sulfur Dioxide	42401	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	100	Ultra-violet Fluorescence	Source Oriented
Sulfur Dioxide Max 5-min Avg	42406	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	100	Ultra-violet Fluorescence	Source Oriented

Labadie, Valley Site

AQS Site Number **29-071-9001**

2901 Labadie Bottom Road, Labadie, MO 63055

Latitude: 38.572522 **AQCR:** 070 Metropolitan St. Louis

Longitude: -90.796911 **MSA:** 7040 St. Louis, MO-IL

Elevation (ft): 525

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
Barometric Pressure	64101	Industrial	1	<input type="checkbox"/>	1	N/A	MET	016	Millbars	015	Instrumental-Barometric Press Transducer	Other

Outdoor Temperature	62101	Industrial	2	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (10m Probe Height)
Outdoor Temperature	62101	Industrial	3	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (2m Probe Height)
Outdoor Temperature Diff	62106	Industrial	1	<input type="checkbox"/>	1	N/A	MET	116	Temp Diff deg C	041	Instrumental: Elect or Mach Avg Lev 2-Lev1	Other (10m - 2m Probe Heights)
Precipitation	65102	Industrial	1	<input type="checkbox"/>	1	N/A	MET	021	inches	014	Heated Tipping Bucket	Other
Relative Humidity	62201	Industrial	1	<input type="checkbox"/>	1	N/A	MET	019	%humidity	061	Met One 083D	Other
Solar Radiation	63301	Industrial	1	<input type="checkbox"/>	1	N/A	MET	079	W/m^2	011	Instrumental-Pyranometer	Other
Std Dev Hz Wind Direction	61106	Industrial	1	<input type="checkbox"/>	1	N/A	MET	014	deg	063	Arithmetic Standard Deviation	Other (10m Tower)
Std Dev Vt Wind Direction	61107	Industrial	1	<input type="checkbox"/>	1	N/A	MET	014	deg	020	Arithmetic Standard Deviation	Other (10m Tower)
Sulfur Dioxide	42401	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	100	Ultra-violet Fluorescence	Source Oriented

Sulfur Dioxide Max 5-min Avg	42406	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	100	Ultra-violet Fluorescence	Source Oriented
Wind Direction - Resultant	61104	Industrial	1	<input type="checkbox"/>	1	N/A	MET	014	deg	020	Vector Summation	Other (10m Tower)
Wind Direction - Scalar	61102	Industrial	1	<input type="checkbox"/>	1	N/A	MET	014	deg	063	Climatronics	Other (10m Tower)
Wind Speed - Resultant	61103	Industrial	1	<input type="checkbox"/>	1	N/A	MET	011	m/s	020	Vector Summation	Other (10m Tower)
Wind Speed - Scalar	61101	Industrial	1	<input type="checkbox"/>	1	N/A	MET	011	m/s	063	Climatronics	Other (10m Tower)
Wind Speed - Vertical	61109	Industrial	1	<input type="checkbox"/>	1	N/A	MET	011	m/s	020	Electronic Averaging	Other (10m Tower)
WS - Sigma Theta (Vertical)	61110	Industrial	1	<input type="checkbox"/>	1	N/A	MET	011	m/s	020	Arithmetic Standard Deviation	Other (10m Tower)

Rush Island, Fults-Site, IL

AQS Site Number **17-133-9001**

Off Ivy Road, Fults, IL 62244

Latitude: 38.15908 **AQCR:** 138 SE Missouri

Longitude: -90.22728 **MSA:** 0000 Not in a MSA

Elevation (ft): 446

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Barometric Pressure	64101	Industrial	1	<input type="checkbox"/>	1	N/A	MET	016	Millbars	015	Instrumental-Barometric Press Transducer	Other
Outdoor Temperature	62101	Industrial	2	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (10m Probe Height)
Outdoor Temperature	62101	Industrial	3	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (2m Probe Height)
Outdoor Temperature Diff	62106	Industrial	1	<input type="checkbox"/>	1	N/A	MET	116	Temp Diff deg C	041	Instrumental: Elect or Mach Avg Lev 2-Lev1	Other (10m - 2m Probe Heights)
Precipitation	65102	Industrial	1	<input type="checkbox"/>	1	N/A	MET	021	inches	014	Heated Tipping Bucket	Other
Relative Humidity	62201	Industrial	1	<input type="checkbox"/>	1	N/A	MET	019	%humidity	061	Met One 083D	Other
Solar Radiation	63301	Industrial	1	<input type="checkbox"/>	1	N/A	MET	079	W/m^2	011	Instrumental-Pyranometer	Other
Std Dev Hz Wind Direction	61106	Industrial	1	<input type="checkbox"/>	1	N/A	MET	014	deg	063	Arithmetic Standard Deviation	Other (10m Tower)
Std Dev Vt Wind Direction	61107	Industrial	1	<input type="checkbox"/>	1	N/A	MET	014	deg	020	Arithmetic Standard Deviation	Other (10m Tower)

Sulfur Dioxide	42401	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	100	Ultra-violet Fluorescence	Source Oriented
Sulfur Dioxide Max 5-min Avg	42406	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	100	Ultra-violet Fluorescence	Source Oriented
Wind Direction - Resultant	61104	Industrial	1	<input type="checkbox"/>	1	N/A	MET	014	deg	020	Vector Summation	Other (10m Tower)
Wind Direction - Scalar	61102	Industrial	1	<input type="checkbox"/>	1	N/A	MET	014	deg	063	Climatronics	Other (10m Tower)
Wind Speed - Resultant	61103	Industrial	1	<input type="checkbox"/>	1	N/A	MET	011	m/s	020	Vector Summation	Other (10m Tower)
Wind Speed - Scalar	61101	Industrial	1	<input type="checkbox"/>	1	N/A	MET	011	m/s	063	Climatronics	Other (10m Tower)
Wind Speed - Vertical	61109	Industrial	1	<input type="checkbox"/>	1	N/A	MET	011	m/s	020	Electronic Averaging	Other (10m Tower)
WS - Sigma Theta (Vertical)	61110	Industrial	1	<input type="checkbox"/>	1	N/A	MET	011	m/s	020	Arithmetic Standard Deviation	Other (10m Tower)

Rush Island, Johnson Tall Tower

AQS Site Number **29-099-9008**

600 Johnson Rd., Festus, MO 63028

Latitude: 38.11999 **AQCR:** 070 Metropolitan St. Louis

Longitude: -90.28214 **MSA:** 7040 St. Louis, MO-IL

Elevation (ft): 656

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC</i>	<i>Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State-Obj</i>	<i>AQS Unit-Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
Outdoor Temperature	62101	Industrial	2	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (62.5m Probe Height)
Outdoor Temperature	62101	Industrial	3	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (132.5m Probe Height)
Outdoor Temperature Diff	62106	Industrial	1	<input type="checkbox"/>	1	N/A	MET	116	Temp Diff deg C	041	Instrumental: Elect or Mach Avg Lev 2-Lev1	Other (132.5m-62.5m Probe Heights)
Std Dev Hz Wind Direction	61106	Industrial	1	<input type="checkbox"/>	1	N/A	MET	014	deg	063	Arithmetic Standard Deviation	Other (132.5m, 15 min)
Std Dev Hz Wind Direction	61106	Industrial	2	<input type="checkbox"/>	1	N/A	MET	014	deg	063	Arithmetic Standard Deviation	Other (132.5m, 60 min)
Std Dev Hz Wind Direction	61106	Industrial	3	<input type="checkbox"/>	1	N/A	MET	014	deg	063	Arithmetic Standard Deviation	Other (62.5m, A-15 min)
Std Dev Hz Wind Direction	61106	Industrial	4	<input type="checkbox"/>	1	N/A	MET	014	deg	063	Arithmetic Standard Deviation	Other (62.5m, A-60 min)
Std Dev Hz Wind Direction	61106	Industrial	5	<input type="checkbox"/>	1	N/A	MET	014	deg	063	Arithmetic Standard Deviation	Other (62.5m, B-15 min)

Std Dev Hz Wind Direction	61106	Industrial	6	<input type="checkbox"/>	1	N/A	MET	014	deg	063	Arithmetic Standard Deviation	Other (62.5m, B-60 min)
Std Dev Vt Wind Direction	61107	Industrial	1	<input type="checkbox"/>	1	N/A	MET	014	deg	020	Arithmetic Standard Deviation	Other (132.5m, 15 min)
Std Dev Vt Wind Direction	61107	Industrial	2	<input type="checkbox"/>	1	N/A	MET	014	deg	020	Arithmetic Standard Deviation	Other (132.5m, 60min)
Std Dev Vt Wind Direction	61107	Industrial	3	<input type="checkbox"/>	1	N/A	MET	014	deg	020	Arithmetic Standard Deviation	Other (62.5m, A-15 min)
Std Dev Vt Wind Direction	61107	Industrial	4	<input type="checkbox"/>	1	N/A	MET	014	deg	020	Arithmetic Standard Deviation	Other (62.5m, A-60min)
Std Dev Vt Wind Direction	61107	Industrial	5	<input type="checkbox"/>	1	N/A	MET	014	deg	020	Arithmetic Standard Deviation	Other (62.5m, B-15 min)
Std Dev Vt Wind Direction	61107	Industrial	6	<input type="checkbox"/>	1	N/A	MET	014	deg	020	Arithmetic Standard Deviation	Other (62.5m, B-60 min)
Wind Direction - Resultant	61104	Industrial	1	<input type="checkbox"/>	1	N/A	MET	014	deg	020	Vector Summation	Other (132.5m Probe Height)
Wind Direction - Resultant	61104	Industrial	2	<input type="checkbox"/>	1	N/A	MET	014	deg	020	Vector Summation	Other (62.5m Probe Height)
Wind Direction - Resultant	61104	Industrial	3	<input type="checkbox"/>	1	N/A	MET	014	deg	020	Vector Summation	Other (62.5m Probe Height)

Wind Direction - Scalar	61102	Industrial	1	<input type="checkbox"/>	1	N/A	MET	014	deg	063	Climatronics	Other (132.5m Probe Height)
Wind Direction - Scalar	61102	Industrial	2	<input type="checkbox"/>	1	N/A	MET	014	deg	063	Climatronics	Other (62.5m Probe Height)
Wind Direction - Scalar	61102	Industrial	3	<input type="checkbox"/>	1	N/A	MET	014	deg	063	Climatronics	Other (62.5m Probe Height)
Wind Speed - Resultant	61103	Industrial	1	<input type="checkbox"/>	1	N/A	MET	011	m/s	020	Vector Summation	Other (132.5m Probe Height)
Wind Speed - Resultant	61103	Industrial	2	<input type="checkbox"/>	1	N/A	MET	011	m/s	020	Vector Summation	Other (62.5m Probe Height)
Wind Speed - Resultant	61103	Industrial	3	<input type="checkbox"/>	1	N/A	MET	011	m/s	020	Vector Summation	Other (62.5m Probe Height)
Wind Speed - Scalar	61101	Industrial	1	<input type="checkbox"/>	1	N/A	MET	011	m/s	063	Climatronics	Other (132.5m Probe Height)
Wind Speed - Scalar	61101	Industrial	2	<input type="checkbox"/>	1	N/A	MET	011	m/s	063	Climatronics	Other (62.5m Probe Height)
Wind Speed - Scalar	61101	Industrial	3	<input type="checkbox"/>	1	N/A	MET	011	m/s	063	Climatronics	Other (62.5m Probe Height)
Wind Speed - Vertical	61109	Industrial	1	<input type="checkbox"/>	1	N/A	MET	011	m/s	020	Electronic Averaging	Other (132.5m Probe Height)

Wind Speed - Vertical	61109	Industrial	2	<input type="checkbox"/>	1	N/A	MET	011	m/s	020	Electronic Averaging	Other (62.5m Probe Height)
Wind Speed - Vertical	61109	Industrial	3	<input type="checkbox"/>	1	N/A	MET	011	m/s	020	Electronic Averaging	Other (62.5m Probe Height)
WS - Sigma Theta (Vertical)	61110	Industrial	1	<input type="checkbox"/>	1	N/A	MET	011	m/s	020	Arithmetic Standard Deviation	Other (132.5m Probe Height)
WS - Sigma Theta (Vertical)	61110	Industrial	2	<input type="checkbox"/>	1	N/A	MET	011	m/s	020	Arithmetic Standard Deviation	Other (62.5m Probe Height)
WS - Sigma Theta (Vertical)	61110	Industrial	3	<input type="checkbox"/>	1	N/A	MET	011	m/s	020	Arithmetic Standard Deviation	Other (62.5m Probe Height)

Rush Island, Natchez

AQS Site Number29-099-9009

917 Natchez Trace Drive, Bloomsdale, MO 63627

Latitude: 38.10525 AQCR: 070 Metropolitan St. Louis

Longitude: -90.29842 MSA: 7040 St. Louis, MO-IL

Elevation (ft): 505

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
Sulfur Dioxide	42401	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	100	Ultra-violet Fluorescence	Source Oriented
Sulfur Dioxide Max 5-min Avg	42406	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	100	Ultra-violet Fluorescence	Source Oriented

Rush Island, Weaver Road & Highway AA

AQS Site Number **29-099-9007**

802 Weaver Road, Festus, MO 63028

Latitude: 38.144972 **AQCR:** 070 Metropolitan St. Louis

Longitude: -90.304783 **MSA:** 7040 St. Louis, MO-IL

Elevation (ft): 502

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC</i>	<i>Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State- Obj</i>	<i>AQS Unit- Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
Sulfur Dioxide	42401	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	100	Ultra-violet Fluorescence	Source Oriented
Sulfur Dioxide Max 5-min Avg	42406	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	100	Ultra-violet Fluorescence	Source Oriented

Doe Run Buick (PQAO - 1288)

County Road 75

AQS Site Number **29-093-9010**

98 Iron County Road, Bixby, MO 65439

Latitude: 37.64876 **AQCR:** 138 SE Missouri

Longitude: -91.14980 **MSA:** 0000 Not in a MSA

Elevation (ft): 1365

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC</i>	<i>Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State- Obj</i>	<i>AQS Unit- Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
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Sulfur Dioxide	42401	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	060	Pulsed Fluorescent	Source Oriented
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Sulfur Dioxide Max 5-min Avg	42406	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	060	Pulsed Fluorescent	Source Oriented
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Doe Run Buick - Buick NE

AQS Site Number **29-093-9008**

346 Power Lane, Bixby West, MO 65439

Latitude: 37.65214 **AQCR:** 138 SE Missouri

Longitude: -91.11689 **MSA:** 0000 Not in a MSA

Elevation (ft): 1423

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC</i>	<i>Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State- Obj</i>	<i>AQS Unit- Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
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Lead (TSP) - LC FRM/FEM 14129		Industrial	1	<input type="checkbox"/>	1/1	MID	COM	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	Source Oriented
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Doe Run Buick - North #5 (NON-A)**AQS Site Number 29-093-0021**

Doe Run Buick - North#5, Buick, MO 65439

Latitude: 37.65178 **AQCR:** 138 SE Missouri**Longitude:** -91.13094 **MSA:** 0000 Not in a MSA**Elevation (ft):** 1443

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State- Obj	AQS Unit- Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Lead (TSP) - LC FRM/FEM 14129	Industrial	1	<input type="checkbox"/>	1/6	MID	SIP	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	Source Oriented
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Doe Run Buick - South #1 (NON-A)**AQS Site Number 29-093-0016**

Doe Run Buick - South#1, Buick, MO 65439

Latitude: 37.62400 **AQCR:** 138 SE Missouri**Longitude:** -91.12827 **MSA:** 0000 Not in a MSA**Elevation (ft):** 1502

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State- Obj	AQS Unit- Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Lead (TSP) - LC FRM/FEM 14129	Industrial	1	<input type="checkbox"/>	1/6	MID	SIP	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	Source Oriented
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Lead (TSP) - LC FRM/FEM 14129	Industrial	2	<input checked="" type="checkbox"/>	1/6	MID	SIP	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	Quality Assurance (Collocation)
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Hwy 32 Northeast**AQS Site Number 29-093-9009**

1582 Highway 32, Bixby, MO 65439

Latitude: 37.65319 **AQCR:** 138 SE Missouri**Longitude:** -91.12795 **MSA:** 0000 Not in a MSA**Elevation (ft):** 1384

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State- Obj	AQS Unit- Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Sulfur Dioxide	42401	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	060	Pulsed Fluorescent	Source Oriented
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Sulfur Dioxide Max 5-min Avg	42406	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	060	Pulsed Fluorescent	Source Oriented
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West Entrance	AQS Site Number	29-093-9011
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18594 Hwy KK, Boss, MO 65440

Latitude: 37.63211 **AQCR:** 138 SE Missouri

Longitude: -91.13565 **MSA:** 0000 Not in a MSA

Elevation (ft): 1463

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC</i>	<i>Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State- Obj</i>	<i>AQS Unit- Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
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Sulfur Dioxide	42401	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	060	Pulsed Fluorescent	Source Oriented
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Sulfur Dioxide Max 5-min Avg	42406	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	060	Pulsed Fluorescent	Source Oriented
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Doe Run Glover (PQAO - 1289)

Doe Run Glover - Big Creek #5 (NON-A)

AQS Site Number **29-093-0029**

Doe Run Glover - Big Creek #5, Hwy 49 Glover, MO 65439

Latitude: 37.47211 **AQCR:** 138 SE Missouri

Longitude: -90.68919 **MSA:** 0000 Not in a MSA

Elevation (ft): 836

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Lead (TSP) - LC FRM/FEM 14129	Industrial	1	<input type="checkbox"/>	1/6	MID	SIP	105	ug/m^3-LC	189	Inter-Mountain Lab, Inc Mass Spectra ICAP	Source Oriented
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Doe Run Glover - Post Office #2 (NON-A)

AQS Site Number **29-093-0027**

Doe Run Glover - Post Office #2, Hwy 49 Glover, MO 65439

Latitude: 37.48532 **AQCR:** 138 SE Missouri

Longitude: -90.68991 **MSA:** 0000 Not in a MSA

Elevation (ft): 831

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Lead (TSP) - LC FRM/FEM 14129	Industrial	1	<input type="checkbox"/>	1/6	MID	SIP	105	ug/m^3-LC	189	Inter-Mountain Lab, Inc Mass Spectra ICAP	Source Oriented
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Lead (TSP) - LC FRM/FEM 14129	Industrial	2	<input checked="" type="checkbox"/>	1/6	MID	SIP	105	ug/m^3-LC	189	Inter-Mountain Lab, Inc Mass Spectra ICAP	Quality Assurance (Collocation)
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Doe Run Herculaneum (PQAO - 1290)

Herculaneum, Church Street (NON-A)

AQS Site Number **29-099-0024**

951 Church St., Herculaneum, MO 63048

Latitude: 38.258667 **AQCR:** 070 Metropolitan St. Louis

Longitude: -90.380889 **MSA:** 7040 St. Louis, MO-IL

Elevation (ft): 463

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Lead (TSP) - LC FRM/FEM 14129	Industrial	1	<input type="checkbox"/>		1/6	NBR	COM	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	Source Oriented
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Lead (TSP) - LC FRM/FEM 14129	Industrial	2	<input checked="" type="checkbox"/>		1/6	NBR	COM	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	Quality Assurance (Collocation)
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Herculaneum, City Hall (Mott Street)

AQS Site Number **29-099-0020**

360 Short Street, Herculaneum, MO, 63048

Latitude: 38.263394 **AQCR:** 070 Metropolitan St. Louis

Longitude: -90.379667 **MSA:** 7040 St. Louis, MO-IL

Elevation (ft): 468

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Lead (TSP) - LC FRM/FEM 14129	Industrial	1	<input type="checkbox"/>		1/1	MID	COM	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	Source Oriented & Highest Concentration
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Lead (TSP) - LC FRM/FEM 14129	Industrial	2	<input checked="" type="checkbox"/>		1/3	MID	COM	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	Quality Assurance (Collocation)
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Herculaneum, Dunklin High School (Combined)

AQS Site Number **29-099-0005**

1 Black Cat Dr., Herculaneum, MO, 63048

Latitude: 38.26703 **AQCR:** 070 Metropolitan St. Louis

Longitude: -90.37875 **MSA:** 7040 St. Louis, MO-IL

Elevation (ft): 445

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Lead (TSP) - LC FRM/FEM 14129	Industrial	2	<input type="checkbox"/>	1/3	NBR	COM	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	Source Oriented & Population Exposure
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Herculaneum, North Cross

AQS Site Number **29-099-0023**

North Cross, Herculaneum, MO 63048

Latitude: 38.26216 **AQCR:** 070 Metropolitan St. Louis

Longitude: -90.38126 **MSA:** 7040 St. Louis, MO-IL

Elevation (ft): 463

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Lead (TSP) - LC FRM/FEM 14129	Industrial	1	<input type="checkbox"/>	1/1	NBR	COM	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	Source Oriented & Population Exposure
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Herculaneum, Sherman

AQS Site Number **29-099-9004**

460 Sherman St., Herculaneum, MO, 63048

Latitude: 38.27170 **AQCR:** 070 Metropolitan St. Louis

Longitude: -90.37658 **MSA:** 7040 St. Louis, MO-IL

Elevation (ft): 462

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Lead (TSP) - LC FRM/FEM 14129	Industrial	1	<input type="checkbox"/>	1/6	NBR	COM	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	Source Oriented
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Environmental Services Program (ESP) [PQAO - 0588]

Alba

AQS Site Number **29-097-0004**

20400 Millwood Rd., Alba, MO 64830

Latitude: 37.2385 **AQCR:** 139 SW Missouri

Longitude: -94.42468 **MSA:** 3710 Joplin, MO

Elevation (ft): 965

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Ozone	44201	SLAMS	1	<input type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	Max Ozone Concentration & Population Exposure
Ozone	44201	SLAMS	2	<input checked="" type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	-

Arnold West

AQS Site Number **29-099-0019**

1709 Lonedell Dr., Arnold, MO 63010

Latitude: 38.44862 **AQCR:** 070 Metropolitan St. Louis

Longitude: -90.3958 **MSA:** 7040 St. Louis, MO-IL

Elevation (ft): 639

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
Ammonium Ion PM2.5 LC	88301	SLAMS	6	<input type="checkbox"/>	1/6	NBR	RES	105	ug/m^3-LC	812	Met One SASS Nylon	Population Exposure (UC-Davis)

Barometric Pressure	64101	SPM	1	<input type="checkbox"/>	1	N/A	MET	059	mm (Hg)	014	Instrumental-Barometric Sensor	Other
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
OP CSN_Rev Undj PM2.5 LC TOR	88378	SLAMS	6	<input type="checkbox"/>	1/6	NBR	RES	105	ug/m^3-LC	842	URG 3000N w/Pall Quartz filter & Cyclone Inlet	Population Exposure (UC-Davis)
Outdoor Temperature	62101	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (4m Probe Height)
Ozone	44201	SLAMS	1	<input type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	Population Exposure
Ozone	44201	SLAMS	2	<input checked="" type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	-
PM10 - LC/FEM/NonFEM	85101	SPM	5	<input type="checkbox"/>	1	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Population Exposure
PM10 - STP FRM/FEM	81102	SLAMS	3	<input type="checkbox"/>	1	NBR	COM	001	ug/m^3	079	R&P SA246B TEOM	Population Exposure
PM2.5 - LC FRM/FEM	88101	SLAMS	4	<input type="checkbox"/>	1	NBR	COM	105	ug/m^3-LC	182	FMDS-Gravimetric 1405-DF	Population Exposure

PM2.5 Tot Atmospheric	88500	SPM	1	<input type="checkbox"/>	1	NBR	AQI	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Population Exposure
PM2.5 Volatile Channel	88503	SPM	1	<input type="checkbox"/>	1	NBR	AQI	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Population Exposure
Relative Humidity	62201	SPM	1	<input type="checkbox"/>	1	N/A	MET	019	%humidity	020	Instrumental-Computed (Indirect)	Other
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	1	N/A	MET	014	deg	067	Instrumental: RM Young Model 05103	Other (10m Tower)
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	1	N/A	MET	012	mph	067	Instrumental: RM Young Model 05103	Other (10m Tower)

Blair Street (86101-2 & 81102-1 to be discontinued) **AQS Site Number 29-510-0085**

3247 Blair Street, St. Louis, MO 63107

Latitude: 38.65638 **AQCR:** 070 Metropolitan St. Louis

Longitude: -90.19825 **MSA:** 7040 St. Louis, MO-IL

Elevation (ft): 492

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC</i>	<i>AQS Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State-Obj</i>	<i>AQS Unit-Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
Ammonium Ion PM2.5 LC	88301	SPM	6	<input type="checkbox"/>	1/3	NBR	RES	105	ug/m^3-LC	812	Met One SASS Nylon	Highest Concentration (UC-Davis)
Barometric Pressure	64101	SLAMS	1	<input type="checkbox"/>	1	N/A	MET	059	mm (Hg)	014	Instrumental-Barometric Sensor	Other

Black Carbon PM2.5 LC	88313	SLAMS	1	<input type="checkbox"/>	1	NBR	RES	105	ug/m^3-LC	894	Magee Scientific TAPI M633 Aethalometer	Population Exposure
Carbon Monoxide	42101	NCORE	1	<input type="checkbox"/>	1	NBR	COM	007	ppm	554	Gas Filter Corr Thermo Electron 48i TLE	Population Exposure
Indoor Temperature	62107	SLAMS	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other (Large Shelter)
Indoor Temperature	62107	SLAMS	2	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other (Small Shelter)
Lead PM10 LC	85128	SPM	6	<input type="checkbox"/>	1/6	NBR	RES	108	ng/m^3-LC	907	R&P Partisol 2025 Teflon	Population Exposure (ERG)
Lead PM10 LC	85128	SPM	7	<input checked="" type="checkbox"/>	1/6	NBR	RES	108	ng/m^3-LC	907	R&P Partisol 2025 Teflon	Population Exposure (ERG)
Nitric Oxide	42601	NCORE	1	<input type="checkbox"/>	1	NBR	COM	008	ppb	699	Teledyne API 200 EU/501	Population Exposure
Nitric Oxide	42601	SLAMS	2	<input type="checkbox"/>	1	NBR	COM	008	ppb	200	Teledyne API T200UP Photolytic	Population Exposure
Nitrogen Dioxide	42602	SLAMS	2	<input type="checkbox"/>	1	NBR	COM	008	ppb	200	Teledyne API T200UP Photolytic	Population Exposure
OP CSN_Rev Undj PM2.5 LC TOR	88378	SPM	6	<input type="checkbox"/>	1/3	NBR	RES	105	ug/m^3-LC	842	URG 3000N w/Pall Quartz filter & Cyclone Inlet	Highest Concentration (UC-Davis)

Outdoor Temperature	62101	NCORE	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (4m Probe Height)
Oxides of Nitrogen	42603	SLAMS	2	<input type="checkbox"/>	1	NBR	COM	008	ppb	200	Teledyne API T200UP Photolytic	Population Exposure
Ozone	44201	NCORE	1	<input type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	Population Exposure
Ozone	44201	NCORE	2	<input checked="" type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	-
PM10 - LC/FEM/NonFEM	85101	SLAMS	1	<input type="checkbox"/>	1/3	NBR	COM	105	ug/m^3-LC	127	Lo-Vol R&P 2025 Sequential	Population Exposure
PM10 - LC/FEM/NonFEM	85101	SLAMS	5	<input type="checkbox"/>	1	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Population Exposure
PM10 - LC/FEM/NonFEM	85101	SPM	6	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	239	Teledyne API T640x	Population Exposure
PM10 - LC/FEM/NonFEM	85101	SPM	7	<input checked="" type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	239	Teledyne API T640x	Population Exposure
PM10 - STP FRM/FEM	81102	SLAMS	1	<input type="checkbox"/>	1/3	NBR	COM	001	ug/m^3	127	Lo-Vol R&P 2025 Sequential	Population Exposure
PM10 - STP FRM/FEM	81102	SPM	6	<input type="checkbox"/>	H	NBR	COM	001	ug/m^3	239	Teledyne API T640x	Population Exposure

PM10 - STP FRM/FEM	81102	SPM	7	<input checked="" type="checkbox"/>	H	NBR	COM	001	ug/m^3	239	Teledyne API T640x	Population Exposure
PM2.5 - LC FRM/FEM	88101	NCORE	2	<input type="checkbox"/>	1/3	NBR	COM	105	ug/m^3-LC	145	R&P 2025 Sequential w/VSCC	Quality Assurance (Collocation)
PM2.5 - LC FRM/FEM	88101	SLAMS	4	<input type="checkbox"/>	1	NBR	COM	105	ug/m^3-LC	182	FMDS-Gravimetric 1405-DF	Population Exposure
PM2.5 - LC FRM/FEM	88101	SPM	6	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	238	Teledyne API T640x	Population Exposure
PM2.5 - LC FRM/FEM	88101	SPM	7	<input checked="" type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	238	Teledyne API T640x	Population Exposure
PM2.5 Tot Atmospheric	88500	SLAMS	1	<input type="checkbox"/>	1	NBR	AQI	105	ug/m^3-LC	790	FMDS-Gravimetric 1405-DF	Population Exposure
PM2.5 Volatile Channel	88503	SLAMS	1	<input type="checkbox"/>	1	NBR	AQI	105	ug/m^3-LC	790	FMDS-Gravimetric 1405-DF	Population Exposure
PMCoarse - LC FRM/FEM	86101	SLAMS	2	<input type="checkbox"/>	1/3	NBR	COM	105	ug/m^3-LC	176	Thermo 2025 Sequential PM10-PM2.5	Population Exposure
PMCoarse - LC FRM/FEM	86101	SPM	6	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	240	Teledyne API T640x	Population Exposure
PMCoarse - LC FRM/FEM	86101	SPM	7	<input checked="" type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	240	Teledyne API T640x	Population Exposure

PMCoarse - LC FRM/FEM	86101	SLAMS	8	<input type="checkbox"/>	1	NBR	COM	105	ug/m^3-LC	207	FMDS-Gravimetric 1405-DF	Population Exposure
Reactive Oxides of N (NOY)	42600	NCORE	1	<input type="checkbox"/>	1	NBR	COM	008	ppb	699	Teledyne API 200 EU/501	Population Exposure
Relative Humidity	62201	NCORE	1	<input type="checkbox"/>	1	N/A	MET	019	%humidity	014	Instrumental-Hygrometer C94 Probe	Other
Solar Radiation	63301	SLAMS	1	<input type="checkbox"/>	1	N/A	MET	079	W/m^2	011	Instrumental-Pyranometer	Other
Std Dev Hz Wind Direction	61106	SPM	1	<input type="checkbox"/>	1	N/A	MET	014	deg	020	Arithmetic Standard Deviation	Other (10m Tower)
Sulfur Dioxide	42401	NCORE	1	<input type="checkbox"/>	1	NBR	COM	008	ppb	560	Pulsed Fluorescent 43i-TLE	Population Exposure
Sulfur Dioxide Max 5-min Avg	42406	NCORE	1	<input type="checkbox"/>	1	NBR	COM	008	ppb	560	Pulsed Fluorescent	Population Exposure
UV Carbon PM2.5 LC	88314	SLAMS	1	<input type="checkbox"/>	1	NBR	RES	105	ug/m^3-LC	894	Magee Scientific TAPI M633 Aethalometer	Population Exposure
Wind Direction - Resultant	61104	NCORE	1	<input type="checkbox"/>	1	N/A	MET	014	deg	065	Instrumental: RM Young Model 05305	Other (10m Tower)

Wind Speed - Resultant 61103 NCORE 1 ☐ 1 N/A MET 012 mph 065 Instrumental: RM Young Model 05305 Other (10m Tower)

Blue Ridge, I-70

AQS Site Number **29-095-0042**

4018 Harvard Lane, Kansas City, MO 64133

Latitude: 39.047911 **AQCR:** 094 Metropolitan Kansas City

Longitude: -94.450513 **MSA:** 3760 Kansas City, MO-KS

Elevation (ft): 960

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC</i>	<i>Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State-Obj</i>	<i>AQS Unit-Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
Barometric Pressure	64101	SPM	1	<input type="checkbox"/>	1	N/A	MET	059	mm (Hg)	014	Instrumental-Barometric Sensor	Other
Black Carbon PM2.5 LC	88313	SPM	1	<input type="checkbox"/>	1	MIC	COM	105	ug/m^3-LC	894	Magee Scientific TAPI M633 Aethalometer	Source Oriented
Carbon Monoxide	42101	SLAMS	1	<input type="checkbox"/>	1	MIC	COM	007	ppm	554	Gas Filter Corr Thermo Electron 48i TLE	Source Oriented
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Nitric Oxide	42601	SPM	1	<input type="checkbox"/>	1	MIC	COM	008	ppb	074	Chemiluminescence	Source Oriented
Nitrogen Dioxide	42602	SLAMS	1	<input type="checkbox"/>	1	MIC	COM	008	ppb	074	Chemiluminescence	Source Oriented

Outdoor Temperature	62101	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (4m Probe Height)
Outdoor Temperature	62101	SPM	2	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (10m Probe Height)
Outdoor Temperature	62101	SPM	3	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (2m Probe Height)
Outdoor Temperature Diff	62106	SPM	1	<input type="checkbox"/>	1	N/A	MET	116	Temp Diff deg C	041	Instrumental: Elect or Mach Avg Lev 2-Lev1	Other
Oxides of Nitrogen	42603	SPM	1	<input type="checkbox"/>	1	MIC	COM	008	ppb	074	Chemiluminescence	Source Oriented
PM10 - LC/FEM/NonFEM	85101	SPM	5	<input type="checkbox"/>	1	MIC	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Source Oriented
PM2.5 - LC FRM/FEM	88101	SLAMS	4	<input type="checkbox"/>	1	MIC	COM	105	ug/m^3-LC	182	FDMS-Gravimetric 1405-DF	Source Oriented
PM2.5 Tot Atmospheric	88500	SPM	1	<input type="checkbox"/>	1	MIC	AQI	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Source Oriented
PM2.5 Volatile Channel	88503	SPM	1	<input type="checkbox"/>	1	MIC	AQI	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Source Oriented
PMCoarse - LC FRM/FEM	86101	SLAMS	8	<input type="checkbox"/>	1	MIC	COM	105	ug/m^3-LC	207	FDMS-Gravimetric 1405-DF	Source Oriented

Precipitation	65102	SPM	1	<input type="checkbox"/>	1	N/A	MET	021	inches	014	Heated Tipping Bucket	Other
Relative Humidity	62201	SPM	1	<input type="checkbox"/>	1	N/A	MET	019	%humidity	020	Instrumental-Computed (Indirect)	Other
Solar Radiation	63301	SPM	1	<input type="checkbox"/>	1	N/A	MET	079	W/m^2	011	Instrumental-Pyranometer	Other
Std Dev Hz Wind Direction	61106	SPM	1	<input type="checkbox"/>	1	N/A	MET	014	deg	020	Arithmetic Standard Deviation	Other (10m Tower)
UV Carbon PM2.5 LC	88314	SPM	1	<input type="checkbox"/>	1	MIC	COM	105	ug/m^3-LC	894	Magee Scientific TAPI M633 Aethalometer	Source Oriented
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	1	N/A	MET	014	deg	065	Instrumental: RM Young Model 05305	Other (10m Tower)
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	1	N/A	MET	012	mph	065	Instrumental: RM Young Model 05305	Other (10m Tower)

Bonne Terre

AQS Site Number29-186-0005

15797 Highway D, Bonne Terre, MO 63628

Latitude: 37.90084 **AQCR:** 138 SE Missouri

Longitude: -90.42388 **MSA:** 0000 Not in a MSA

Elevation (ft): 840

Parameter	AQS Code	AQS Monitor Type	AQS POC	AQS Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Ozone	44201	SLAMS	1	<input type="checkbox"/>	1	REG	COM	007	ppm	047	Ultraviolet Photometric	Regional Transport
Ozone	44201	SLAMS	2	<input checked="" type="checkbox"/>	1	REG	COM	007	ppm	047	Ultraviolet Photometric	-
Solar Radiation	63301	SPM	1	<input type="checkbox"/>	1	N/A	MET	079	W/m^2	011	Instrumental-Pyranometer	Other

Branch Street
AQS Site Number29-510-0093

100 Branch St., St. Louis, MO 63102

Latitude: 38.65643 AQCR: 070 Metropolitan St. Louis

Longitude: -90.18977 MSA: 7040 St. Louis, MO-IL

Elevation (ft): 429

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Barometric Pressure	64101	SPM	1	<input type="checkbox"/>	1	N/A	MET	059	mm (Hg)	014	Instrumental-Barometric Sensor	Other
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Outdoor Temperature	62101	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (4m Probe Height)

PM10 - LC/FEM/NonFEM	85101	SPM	5	<input type="checkbox"/>	1	MID	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Source Oriented
PM10 - STP FRM/FEM	81102	SLAMS	3	<input type="checkbox"/>	1	MID	COM	001	ug/m^3	079	R&P SA246B TEOM	Source Oriented
PM2.5 - LC FRM/FEM	88101	SLAMS	4	<input type="checkbox"/>	1	MID	COM	105	ug/m^3-LC	182	FDMS-Gravimetric 1405-DF	Source Oriented
PM2.5 Tot Atmospheric	88500	SPM	1	<input type="checkbox"/>	1	MID	AQI	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Source Oriented
PM2.5 Volatile Channel	88503	SPM	1	<input type="checkbox"/>	1	MID	AQI	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Source Oriented
Relative Humidity	62201	SPM	1	<input type="checkbox"/>	1	N/A	MET	019	%humidity	020	Instrumental-Computed (Indirect)	Other
Std Dev Hz Wind Direction	61106	SPM	1	<input type="checkbox"/>	1	N/A	MET	014	deg	020	Arithmetic Standard Deviation	Other (10m Tower)
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	1	N/A	MET	014	deg	065	Instrumental: RM Young Model 05305	Other (10m Tower)
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	1	N/A	MET	012	mph	065	Instrumental: RM Young Model 05305	Other (10m Tower)

346 Power Lane, Bixby West, MO 65439

Latitude: 37.65212 **AQCR:** 138 SE Missouri**Longitude:** -91.11653 **MSA:** 0000 Not in a MSA**Elevation (ft):** 1423

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC</i>	<i>Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State-Obj</i>	<i>AQS Unit-Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Lead (TSP) - LC FRM/FEM 14129		SLAMS	1	<input type="checkbox"/>	1/6	MID	COM	105	ug/m^3-LC	813	Inductively Coupled Plasma Mass Spectroscopy	Source Oriented & Highest Concentration
Lead (TSP) - LC FRM/FEM 14129		SLAMS	2	<input checked="" type="checkbox"/>	1/6	MID	COM	105	ug/m^3-LC	813	Inductively Coupled Plasma Mass Spectroscopy	Quality Assurance (Collocation)
Sulfur Dioxide	42401	SPM	1	<input type="checkbox"/>	1	MID	COM	008	ppb	060	Pulsed Fluorescent	Source Oriented
Sulfur Dioxide Max 5-min Avg	42406	SPM	1	<input type="checkbox"/>	1	MID	COM	008	ppb	060	Pulsed Fluorescent	Source Oriented
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	1	N/A	MET	014	deg	065	Instrumental: RM Young Model 05305	Other (6 meters)
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	1	N/A	MET	012	mph	065	Instrumental: RM Young Model 05305	Other (6 meters)

Carthage

AQS Site Number **29-097-0003**

530 Juniper, Carthage, MO 64836

Latitude: 37.19822 **AQCR:** 139 SW Missouri

Longitude: -94.31702 **MSA:** 3710 Joplin, MO

Elevation (ft): 986

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
PM10 - STP FRM/FEM	81102	SLAMS	3	<input type="checkbox"/>	1	MID	COM	001	ug/m^3	079	R&P SA246B TEOM	Source Oriented
PM10 - STP FRM/FEM	81102	SLAMS	4	<input checked="" type="checkbox"/>	1	MID	COM	001	ug/m^3	079	R&P SA246B TEOM	Quality Assurance (Collocation)
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	1	N/A	MET	014	deg	065	Instrumental: RM Young Model 05305	Other (5.5 meters)
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	1	N/A	MET	012	mph	065	Instrumental: RM Young Model 05305	Other (5.5 meters)

El Dorado Springs

AQS Site Number **29-039-0001**

Highway 97 & Barnes Road, El Dorado Springs, MO 64744

Latitude: 37.70097 **AQCR:** 139 SW Missouri

Longitude: -94.03474 **MSA:** 0000 Not in a MSA

Elevation (ft): 965

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Barometric Pressure	64101	SPM	1	<input type="checkbox"/>	1	N/A	MET	059	mm (Hg)	014	Instrumental-Barometric Sensor	Other
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Outdoor Temperature	62101	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (4m Probe Height)
Ozone	44201	SLAMS	1	<input type="checkbox"/>	1	REG	COM	007	ppm	047	Ultraviolet Photometric	Regional Transport
Ozone	44201	SLAMS	2	<input checked="" type="checkbox"/>	1	REG	COM	007	ppm	047	Ultraviolet Photometric	-
PM10 - LC/FEM/NonFEM	85101	SPM	5	<input type="checkbox"/>	1	REG	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Regional Transport
PM2.5 - LC FRM/FEM	88101	SLAMS	4	<input type="checkbox"/>	1	REG	COM	105	ug/m^3-LC	182	FDMS-Gravimetric 1405-DF	Regional Transport
PM2.5 Tot Atmospheric	88500	SPM	1	<input type="checkbox"/>	1	REG	AQI	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Regional Transport
PM2.5 Volatile Channel	88503	SPM	1	<input type="checkbox"/>	1	REG	AQI	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Regional Transport

Relative Humidity	62201	SPM	2	<input type="checkbox"/>	1	N/A	MET	019	%humidity	020	Instrumental-Computed (Indirect)	Other
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	1	N/A	MET	014	deg	067	Instrumental: RM Young Model 05103	Other (5.5 meters)
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	1	N/A	MET	012	mph	067	Instrumental: RM Young Model 05103	Other (5.5 meters)

Farrar AQS Site Number 29-157-0001

County Rd. 342, Farrar, MO 63746

Latitude: 37.70264 **AQCR:** 138 SE Missouri

Longitude: -89.698640 **MSA:** 0000 Not in a MSA

Elevation (ft): 497

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Ozone	44201	SLAMS	1	<input type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	Max Ozone Concentration & Extreme Downwind
Ozone	44201	SLAMS	2	<input checked="" type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	-

Fellows Lake

AQS Site Number **29-077-0042**

4208 E. Farm Rd. 66, Springfield, MO 65803

Latitude: 37.31912 **AQCR:** 139 SW Missouri

Longitude: -93.20422 **MSA:** 7920 Springfield, MO

Elevation (ft): 1346

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Ozone	44201	SLAMS	1	<input type="checkbox"/>	1	URB	COM	007	ppm	047	Ultraviolet Photometric	Max Ozone Concentration & Population Exposure
Ozone	44201	SLAMS	2	<input checked="" type="checkbox"/>	1	URB	COM	007	ppm	047	Ultraviolet Photometric	-

Finger Lakes

AQS Site Number **29-019-0011**

1505 E. Peabody Road, Columbia, MO 65202

Latitude: 39.07803 **AQCR:** 137 Northern Missouri

Longitude: -92.31632 **MSA:** 1740 Columbia, MO

Elevation (ft): 726

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Ozone	44201	SLAMS	1	<input type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	Max Ozone Concentration & Population Exposure

Ozone	44201	SLAMS	2	<input checked="" type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	-
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Fletcher
AQS Site Number 29-179-0002

Forest Rd. 2236, Westfork, MO 64498

Latitude: 37.46889 **AQCR:** 138 SE Missouri
Longitude: -91.08847 **MSA:** 0000 Not in a MSA
Elevation (ft): 1256

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC</i>	<i>Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State- Obj</i>	<i>AQS Unit- Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
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Lead (TSP) - LC FRM/FEM 14129	SLAMS	1	<input type="checkbox"/>	1/6	NBR	COM	105	ug/m^3-LC	813	Inductively Coupled Plasma Mass Spectroscopy	Source Oriented
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Foley West
AQS Site Number 29-113-0004

2100 Highway Y Foley, MO 63347

Latitude: 39.04577 **AQCR:** 137 Northern Missouri
Longitude: -90.84927 **MSA:** 7040 St. Louis, MO-IL
Elevation (ft): 715

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC</i>	<i>Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State- Obj</i>	<i>AQS Unit- Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
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Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Ozone	44201	SLAMS	1	<input type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	Extreme Downwind

Ozone	44201	SLAMS	2	<input checked="" type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	-
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Forest City, Exide Levee

AQS Site Number29-087-0008

25942 Hwy 111, Forest City, MO 64451

Latitude: 40.027222 AQCR: 137 Northern Missouri

Longitude: -95.235833 MSA: 0000 Not in a MSA

Elevation (ft): 904

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
Lead (TSP) - LC FRM/FEM 14129		SLAMS	1	<input type="checkbox"/>	1/6	MID	COM	105	ug/m^3-LC	813	Inductively Coupled Plasma Mass Spectroscopy	Source Oriented

Forest Park

AQS Site Number29-510-0094

5600 Clayton Avenue, St. Louis, MO 63110

Latitude: 38.63114 AQCR: 070 Metropolitan St. Louis

Longitude: -90.28115 MSA: 7040 St. Louis, MO-IL

Elevation (ft): 551

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
Barometric Pressure	64101	SPM	1	<input type="checkbox"/>	1	N/A	MET	059	mm (Hg)	014	Instrumental-Barometric Sensor	Other
Black Carbon PM2.5 LC	88313	SPM	1	<input type="checkbox"/>	1	MIC	COM	105	ug/m^3-LC	894	Magee Scientific TAPI M633 Aethalometer	Source Oriented
Carbon Monoxide	42101	SLAMS	1	<input type="checkbox"/>	1	MIC	COM	007	ppm	554	Gas Filter Corr Thermo Electron 48i TLE	Source Oriented
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other

Nitric Oxide	42601	SPM	1	<input type="checkbox"/>	1	MIC	COM	008	ppb	074	Chemiluminescence	Source Oriented
Nitrogen Dioxide	42602	SLAMS	1	<input type="checkbox"/>	1	MIC	COM	008	ppb	074	Chemiluminescence	Source Oriented
Outdoor Temperature	62101	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (4m Probe Height)
Outdoor Temperature	62101	SPM	2	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (10m Probe Height)
Outdoor Temperature	62101	SPM	3	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (2m Probe Height)
Outdoor Temperature Diff	62106	SPM	1	<input type="checkbox"/>	1	N/A	MET	116	Temp Diff deg C	041	Instrumental: Elect or Mach Avg Lev 2-Lev1	Other (10m - 2m Probe Height)
Oxides of Nitrogen	42603	SPM	1	<input type="checkbox"/>	1	MIC	COM	008	ppb	074	Chemiluminescence	Source Oriented
PM10 - LC/FEM/NonFEM	85101	SPM	5	<input type="checkbox"/>	1	MIC	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Source Oriented
PM2.5 - LC FRM/FEM	88101	SLAMS	4	<input type="checkbox"/>	1	MIC	COM	105	ug/m^3-LC	182	FMDS-Gravimetric 1405-DF	Source Oriented

PM2.5 Tot Atmospheric	88500	SPM	1	<input type="checkbox"/>	1	MIC	AQI	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Source Oriented
PM2.5 Volatile Channel	88503	SPM	1	<input type="checkbox"/>	1	MIC	AQI	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Source Oriented
PMCoarse - LC FRM/FEM	86101	SLAMS	8	<input type="checkbox"/>	1	MIC	COM	105	ug/m^3-LC	207	FDMS-Gravimetric 1405-DF	Source Oriented
Precipitation	65102	SPM	1	<input type="checkbox"/>	1	N/A	MET	021	inches	014	Heated Tipping Bucket	Other
Relative Humidity	62201	SPM	1	<input type="checkbox"/>	1	N/A	MET	019	%humidity	020	Instrumental-Computed (Indirect)	Other
Solar Radiation	63301	SLAMS	1	<input type="checkbox"/>	1	N/A	MET	079	W/m^2	011	Instrumental-Pyranometer	Other
Std Dev Hz Wind Direction	61106	SPM	1	<input type="checkbox"/>	1	N/A	MET	014	deg	020	Arithmetic Standard Deviation	Other (10m Tower)
UV Carbon PM2.5 LC	88314	SPM	1	<input type="checkbox"/>	1	MIC	COM	105	ug/m^3-LC	894	Magee Scientific TAPI M633 Aethalometer	Source Oriented
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	1	N/A	MET	014	deg	065	Instrumental: RM Young Model 05305	Other (10m Tower)

Wind Speed - Resultant 61103 SPM 1 ☐ 1 N/A MET 012 mph 065 Instrumental: RM Young Model 05305 Other (10m Tower)

Front Street

AQS Site Number **29-095-0018**

1331 N. Jackson, Kansas City, MO 64120

Latitude: 39.13198 **AQCR:** 094 Metropolitan Kansas City

Longitude: -94.53128 **MSA:** 3760 Kansas City, MO-KS

Elevation (ft): 728

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
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PM10 - STP FRM/FEM	81102	SLAMS	3	<input type="checkbox"/>	1	NBR	COM	001	ug/m^3	079	R&P SA246B TEOM	Highest Concentration & Population Exposure
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Herculaneum, Dunklin High School (Combined)

AQS Site Number **29-099-0005**

1 Black Cat Dr., Herculaneum, MO, 63048

Latitude: 38.26703 **AQCR:** 070 Metropolitan St. Louis

Longitude: -90.37875 **MSA:** 7040 St. Louis, MO-IL

Elevation (ft): 445

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Lead (TSP) - LC FRM/FEM	14129	SLAMS	1	<input type="checkbox"/>	1/6	NBR	COM	105	ug/m^3-LC	813	Inductively Coupled Plasma Mass Spectroscopy	Source Oriented
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Herculaneum, Mott Street

AQS Site Number **29-099-0027**

747 Mott St., Herculaneum, MO, 63048

Latitude: 38.263394 **AQCR:** 070 Metropolitan St. Louis

Longitude: -90.379667 **MSA:** 7040 St. Louis, MO-IL

Elevation (ft): 468

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC</i>	<i>Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State-Obj</i>	<i>AQS Unit-Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Lead (TSP) - LC FRM/FEM 14129		SLAMS	1	<input type="checkbox"/>	1/1	MID	COM	105	ug/m^3-LC	813	Inductively Coupled Plasma Mass Spectroscopy	Source Oriented & Highest Concentration
Lead (TSP) - LC FRM/FEM 14129		SLAMS	2	<input checked="" type="checkbox"/>	1/3	MID	COM	105	ug/m^3-LC	813	Inductively Coupled Plasma Mass Spectroscopy	Quality Assurance (Collocation)
Sulfur Dioxide	42401	SLAMS	1	<input type="checkbox"/>	1	MID	COM	008	ppb	060	Pulsed Fluorescent	Source Oriented & Highest Concentration
Sulfur Dioxide Max 5-min Avg	42406	SPM	1	<input type="checkbox"/>	1	MID	COM	008	ppb	060	Pulsed Fluorescent	Source Oriented & Highest Concentration
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	1	N/A	MET	014	deg	067	Instrumental: RM Young Model 05103	Other (5.5 meters)
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	1	N/A	MET	012	mph	067	Instrumental: RM Young Model 05103	Other (5.5 meters)

Herculaneum, Sherman

AQS Site Number **29-099-0013**

460 Sherman St., Herculaneum, MO, 63048

Latitude: 38.27170 **AQCR:** 070 Metropolitan St. Louis

Longitude: -90.37658 **MSA:** 7040 St. Louis, MO-IL

Elevation (ft): 462

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
Lead (TSP) - LC FRM/FEM 14129		SLAMS	1	<input type="checkbox"/>	1/6	NBR	COM	105	ug/m^3-LC	813	Inductively Coupled Plasma Mass Spectroscopy	Source Oriented

Hillcrest High School

AQS Site Number **29-077-0036**

3319 N. Grant, Springfield, MO 65803

Latitude: 37.25607 **AQCR:** 139 SW Missouri

Longitude: -93.29970 **MSA:** 7920 Springfield, MO

Elevation (ft): 1321

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
Barometric Pressure	64101	SPM	1	<input type="checkbox"/>	1	N/A	MET	059	mm (Hg)	014	Instrumental-Barometric Sensor	Other
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Outdoor Temperature	62101	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (4m Probe Height)
Ozone	44201	SLAMS	1	<input type="checkbox"/>	1	URB	COM	007	ppm	047	Ultraviolet Photometric	Population Exposure

Ozone	44201	SLAMS	2	<input checked="" type="checkbox"/>	1	URB	COM	007	ppm	047	Ultraviolet Photometric	-
PM10 - LC/FEM/NonFEM	85101	SPM	5	<input type="checkbox"/>	1	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Population Exposure
PM10 - STP FRM/FEM	81102	SLAMS	3	<input type="checkbox"/>	1	NBR	COM	001	ug/m^3	079	R&P SA246B TEOM	Population Exposure
PM2.5 - LC FRM/FEM	88101	SLAMS	4	<input type="checkbox"/>	1	NBR	COM	105	ug/m^3-LC	182	FDMS-Gravimetric 1405-DF	Population Exposure
PM2.5 Tot Atmospheric	88500	SPM	1	<input type="checkbox"/>	1	NBR	AQI	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Population Exposure
PM2.5 Volatile Channel	88503	SPM	1	<input type="checkbox"/>	1	NBR	AQI	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Population Exposure
Relative Humidity	62201	SPM	1	<input type="checkbox"/>	1	N/A	MET	019	%humidity	020	Instrumental-Computed (Indirect)	Other

Ladue

AQS Site Number 29-189-3001

73 Hunter Ave., Ladue, MO 63124

Latitude: 38.65028 **AQCR:** 070 Metropolitan St. Louis

Longitude: -90.35021 **MSA:** 7040 St. Louis, MO-IL

Elevation (ft): 511

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC</i>	<i>Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State-Obj</i>	<i>AQS Unit-Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
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Barometric Pressure	64101	SPM	1	<input type="checkbox"/>	1	N/A	MET	059	mm (Hg)	014	Instrumental-Barometric Sensor	Other
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Outdoor Temperature	62101	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (4m Probe Height)
PM2.5 - LC FRM/FEM	88101	SLAMS	1	<input type="checkbox"/>	1	NBR	COM	105	ug/m^3-LC	181	PM2.5 VSCC FEM or Thermo Scientific 1405-F	Population Exposure
PM2.5 - LC FRM/FEM	88101	SLAMS	2	<input checked="" type="checkbox"/>	1/6	NBR	COM	105	ug/m^3-LC	145	R&P 2025 Sequential w/VSCC	Quality Assurance (Collocation)
PM2.5 Volatile Channel	88503	SLAMS	1	<input type="checkbox"/>	1	NBR	COM	105	ug/m^3-LC	181	PM2.5 VSCC FEM or Thermo Scientific 1405-F	Population Exposure
Relative Humidity	62201	SPM	1	<input type="checkbox"/>	1	N/A	MET	019	%humidity	020	Instrumental-Computed (Indirect)	Other

Liberty

AQS Site Number29-047-0005

Highway 33 & County Home Rd., Liberty, MO 64068

Latitude: 39.30314 **AQCR:** 094 Metropolitan Kansas City

Longitude: -94.37678 **MSA:** 3760 Kansas City, MO-KS

Elevation (ft): 941

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC</i>	<i>Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State-Obj</i>	<i>AQS Unit-Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
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Barometric Pressure	64101	SPM	1	<input type="checkbox"/>	1	N/A	MET	059	mm (Hg)	014	Instrumental-Barometric Sensor	Other
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Outdoor Temperature	62101	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (4m Probe Height)
Ozone	44201	SLAMS	1	<input type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	Population Exposure
Ozone	44201	SLAMS	2	<input checked="" type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	-
PM10 - LC/FEM/NonFEM	85101	SPM	5	<input type="checkbox"/>	1	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Population Exposure
PM2.5 - LC FRM/FEM	88101	SLAMS	4	<input type="checkbox"/>	1	NBR	COM	105	ug/m^3-LC	182	FDMS-Gravimetric 1405-DF	Population Exposure
PM2.5 Tot Atmospheric	88500	SPM	1	<input type="checkbox"/>	1	NBR	AQI	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Population Exposure
PM2.5 Volatile Channel	88503	SPM	1	<input type="checkbox"/>	1	NBR	AQI	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Population Exposure

Relative Humidity	62201	SPM	1	<input type="checkbox"/>	1	N/A	MET	019	%humidity	020	Instrumental-Computed (Indirect)	Other
Solar Radiation	63301	SPM	1	<input type="checkbox"/>	1	N/A	MET	079	W/m^2	011	Instrumental-Pyranometer	Other

Mark Twain State Park
AQS Site Number 29-137-0001

20057 State Park Office Rd., Stoutsville, MO 65283

Latitude: 39.47510 **AQCR:** 137 Northern Missouri

Longitude: -91.78899 **MSA:** 0000 Not in a MSA

Elevation (ft): 710

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC</i>	<i>Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State-Obj</i>	<i>AQS Unit-Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Nitric Oxide	42601	SPM	1	<input type="checkbox"/>	1	REG	COM	008	ppb	074	Chemiluminescence	General/Background
Nitrogen Dioxide	42602	SPM	1	<input type="checkbox"/>	1	REG	COM	008	ppb	074	Chemiluminescence	General/Background
Oxides of Nitrogen	42603	SPM	1	<input type="checkbox"/>	1	REG	COM	008	ppb	074	Chemiluminescence	General/Background
Ozone	44201	SLAMS	1	<input type="checkbox"/>	1	REG	COM	007	ppm	047	Ultraviolet Photometric	General/Background

Ozone	44201	SLAMS	2	<input checked="" type="checkbox"/>	1	REG	COM	007	ppm	047	Ultraviolet Photometric	-
PM10 - STP FRM/FEM	81102	SPM	3	<input type="checkbox"/>	1	REG	SIP	001	ug/m^3	079	R&P SA246B TEOM	General/Back ground
Sulfur Dioxide	42401	SPM	1	<input type="checkbox"/>	1	REG	SIP	008	ppb	060	Pulsed Fluorescent	General/Back ground
Sulfur Dioxide Max 5-min Avg	42406	SPM	1	<input type="checkbox"/>	1	NBR	COM	008	ppb	060	Pulsed Fluorescent	General/Back ground
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	1	N/A	MET	014	deg	065	Instrumental: RM Young Model 05305	Other (10m Tower)
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	1	N/A	MET	012	mph	065	Instrumental: RM Young Model 05305	Other (10m Tower)

Maryland Heights

AQS Site Number **29-189-0014**

13044 Marine Ave., Maryland Heights, MO 63146

Latitude: 38.71085 **AQCR:** 070 Metropolitan St. Louis

Longitude: -90.47606 **MSA:** 7040 St. Louis, MO-IL

Elevation (ft): 607

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State-Obj</i>	<i>AQS Unit-Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
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Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
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Ozone	44201	SLAMS	1	<input type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	Population Exposure
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Ozone	44201	SLAMS	2	<input checked="" type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	-
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New Bloomfield AQS Site Number 29-027-0002

2625 Meadow Lake View, New Bloomfield, MO, 65063

Latitude: 38.70608 **AQCR:** 137 Northern Missouri

Longitude: -92.09308 **MSA:** 0000 Not in a MSA

Elevation (ft): 860

Parameter	AQS Code	AQS Monitor Type	AQS POC	AQS Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Ozone	44201	SLAMS	1	<input type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	Max Ozone Concentration & Population Exposure

Ozone	44201	SLAMS	2	<input checked="" type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	-
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Oates AQS Site Number 29-179-0034

13155 Highway KK, Boss, MO 65440

Latitude: 37.56485 **AQCR:** 138 SE Missouri

Longitude: -91.11423 **MSA:** 0000 Not in a MSA

Elevation (ft): 1134

Parameter	AQS Code	AQS Monitor Type	AQS POC	AQS Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Lead (TSP) - LC FRM/FEM 14129 SLAMS 1 ☐ 1/6 NBR COM 105 ug/m^3-LC 813 Inductively Coupled Plasma Mass Spectroscopy Source Oriented

Orchard Farm **AQS Site Number 29-183-1004**

2165 Highway V, St. Charles, MO 63301

Latitude: 38.8994 **AQCR:** 070 Metropolitan St. Louis

Longitude: -90.44917 **MSA:** 7040 St. Louis, MO-IL

Elevation (ft): 441

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
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Ozone	44201	SLAMS	1	<input type="checkbox"/>	1	URB	COM	007	ppm	047	Ultraviolet Photometric	Extreme Downwind
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Ozone	44201	SLAMS	2	<input checked="" type="checkbox"/>	1	URB	COM	007	ppm	047	Ultraviolet Photometric	-
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Pacific **AQS Site Number 29-189-0005**

18701 Old Highway 66, Pacific, MO 63069

Latitude: 38.49011 **AQCR:** 070 Metropolitan St. Louis

Longitude: -90.70509 **MSA:** 7040 St. Louis, MO-IL

Elevation (ft): 524

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
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Ozone	44201	SLAMS	1	<input type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	Population Exposure
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Ozone	44201	SLAMS	2	<input checked="" type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	-
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Richards Gebaur-South

AQS Site Number29-037-0003

1802 E. 203rd Street, Belton, MO, 64012

Latitude: 38.75961 **AQCR:** 094 Metropolitan Kansas City

Longitude: -94.57983 **MSA:** 3760 Kansas City, MO-KS

Elevation (ft): 1082

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC</i>	<i>Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State-Obj</i>	<i>AQS Unit-Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
Barometric Pressure	64101	SPM	1	<input type="checkbox"/>	1	N/A	MET	059	mm (Hg)	014	Instrumental-Barometric Sensor	Other
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Outdoor Temperature	62101	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (4m Probe Height)
Ozone	44201	SLAMS	1	<input type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	Population Exposure
Ozone	44201	SLAMS	2	<input checked="" type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	-

PM10 - LC/FEM/NonFEM	85101	SPM	5	<input type="checkbox"/>	1	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Population Exposure
PM2.5 - LC FRM/FEM	88101	SLAMS	4	<input type="checkbox"/>	1	NBR	COM	105	ug/m^3-LC	182	FDMS-Gravimetric 1405-DF	Population Exposure
PM2.5 Tot Atmospheric	88500	SPM	1	<input type="checkbox"/>	1	NBR	AQI	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Population Exposure
PM2.5 Volatile Channel	88503	SPM	1	<input type="checkbox"/>	1	NBR	AQI	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Population Exposure
Relative Humidity	62201	SPM	1	<input type="checkbox"/>	1	N/A	MET	019	%humidity	020	Instrumental-Computed (Indirect)	Other
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	1	N/A	MET	014	deg	067	Instrumental: RM Young Model 05103	Other (10m Tower)
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	1	N/A	MET	012	mph	067	Instrumental: RM Young Model 05103	Other (10m Tower)

Rider Trail, I-70

AQS Site Number **29-189-0016**

13080 Hollenberg Drive, Bridgeton, MO 63044

Latitude: 38.75264 **AQCR:** 070 Metropolitan St. Louis

Longitude: -90.44884 **MSA:** 7040 St. Louis, MO-IL

Elevation (ft): 515

Parameter	AQS Code	AQS Monitor Type	AQS POC	AQS Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Barometric Pressure	64101	SPM	1	<input type="checkbox"/>	1	N/A	MET	059	mm (Hg)	014	Instrumental-Barometric Sensor	Other
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Nitric Oxide	42601	SPM	1	<input type="checkbox"/>	1	MIC	COM	008	ppb	074	Chemiluminescence	Source Oriented
Nitrogen Dioxide	42602	SLAMS	1	<input type="checkbox"/>	1	MIC	COM	008	ppb	074	Chemiluminescence	Source Oriented
Outdoor Temperature	62101	SPM	2	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (10m Probe Height)
Outdoor Temperature	62101	SPM	3	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (2m Probe Height)
Outdoor Temperature Diff	62106	SPM	1	<input type="checkbox"/>	1	N/A	MET	116	Temp Diff deg C	041	Instrumental: Elect or Mach Avg Lev 2-Lev1	Other (10m - 2m Probe Height)
Oxides of Nitrogen	42603	SPM	1	<input type="checkbox"/>	1	MIC	COM	008	ppb	074	Chemiluminescence	Source Oriented
Precipitation	65102	SPM	1	<input type="checkbox"/>	1	N/A	MET	021	inches	014	Heated Tipping Bucket	Other

Relative Humidity	62201	SPM	1	<input type="checkbox"/>	1	N/A	MET	019	%humidity	020	Instrumental-Computed (Indirect)	Other
Solar Radiation	63301	SPM	1	<input type="checkbox"/>	1	N/A	MET	079	W/m^2	011	Instrumental-Pyranometer	Other
Std Dev Hz Wind Direction	61106	SPM	1	<input type="checkbox"/>	1	N/A	MET	014	deg	020	Arithmetic Standard Deviation	Other (10m Tower)
Sulfur Dioxide	42401	SPM	1	<input type="checkbox"/>	1	MID	SPP	008	ppb	060	Pulsed Fluorescent	Population Exposure
Sulfur Dioxide Max 5-min Avg	42406	SPM	1	<input type="checkbox"/>	1	MID	SPP	008	ppb	060	Pulsed Fluorescent	Population Exposure
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	1	N/A	MET	014	deg	065	Instrumental: RM Young Model 05305	Other (10m Tower)
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	1	N/A	MET	012	mph	065	Instrumental: RM Young Model 05305	Other (10m Tower)

Rocky Creek

AQS Site Number29-047-0006

2-114 NW 132 St., Kansas City, MO 64165

Latitude: 39.33188 **AQCR:** 094 Metropolitan Kansas City

Longitude: -94.58069 **MSA:** 3760 Kansas City, MO-KS

Elevation (ft): 990

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State-Obj</i>	<i>AQS Unit-Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
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Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Ozone	44201	SLAMS	1	<input type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	Population Exposure
Ozone	44201	SLAMS	2	<input checked="" type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	-

Savannah

AQS Site Number29-003-0001

11796 Highway 71, Savannah, MO 64485

Latitude: 39.9544 **AQCR:** 137 Northern Missouri

Longitude: -94.849 **MSA:** 7000 St. Joseph, MO

Elevation (ft): 1120

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC</i>	<i>Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State-Obj</i>	<i>AQS Unit-Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Ozone	44201	SLAMS	1	<input type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	Population Exposure
Ozone	44201	SLAMS	2	<input checked="" type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	-

South Broadway

AQS Site Number **29-510-0007**

8227 South Broadway, St. Louis, MO 63111

Latitude: 38.5425 **AQCR:** 070 Metropolitan St. Louis

Longitude: -90.263611 **MSA:** 7040 St. Louis, MO-IL

Elevation (ft): 452

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC</i>	<i>Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State-Obj</i>	<i>AQS Unit-Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
Barometric Pressure	64101	SLAMS	1	<input type="checkbox"/>	1	N/A	MET	059	mm (Hg)	014	Instrumental-Barometric Sensor	Other
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Outdoor Temperature	62101	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (4m Probe Height)
PM10 - LC/FEM/NonFEM	85101	SPM	5	<input type="checkbox"/>	1	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Population Exposure
PM2.5 - LC FRM/FEM	88101	SLAMS	4	<input type="checkbox"/>	1	NBR	COM	105	ug/m^3-LC	182	FDMS-Gravimetric 1405-DF	Population Exposure
PM2.5 Tot Atmospheric	88500	SPM	1	<input type="checkbox"/>	1	NBR	AQI	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Population Exposure
PM2.5 Volatile Channel	88503	SPM	1	<input type="checkbox"/>	1	NBR	AQI	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Population Exposure

Relative Humidity	62201	SPM	1	<input type="checkbox"/>	1	N/A	MET	019	%humidity	020	Instrumental- Computed (Indirect)	Other
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St. Joe State Park AQS Site Number 29-187-0007

2800 Pimville Rd., Park Hills, MO 63601

Latitude: 37.81413 **AQCR:** 138 SE Missouri
Longitude: -90.50738 **MSA:** 0000 Not in a MSA
Elevation (ft): 937

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State- Obj	AQS Unit- Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Lead (TSP) - LC FRM/FEM 14129	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	105	ug/m^3-LC	813	Inductively Coupled Plasma Mass Spectroscopy	Source Oriented
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St. Joseph Pump Station AQS Site Number 29-021-0005

S. Highway 759, St. Joseph, MO 64501

Latitude: 39.741667 **AQCR:** 094 Metropolitan Kansas City
Longitude: -94.858333 **MSA:** 7000 St. Joseph, MO
Elevation (ft): 845

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State- Obj	AQS Unit- Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
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Barometric Pressure	64101	SPM	1	<input type="checkbox"/>	1	N/A	MET	059	mm (Hg)	014	Instrumental- Barometric Sensor	Other
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Barometric Pressure	64101	SPM	2	<input checked="" type="checkbox"/>	1	N/A	MET	059	mm (Hg)	014	Instrumental- Barometric Sensor	Other
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Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
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Outdoor Temperature	62101	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (4m Probe Height)
Outdoor Temperature	62101	SPM	2	<input checked="" type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (4m Probe Height)
PM10 - LC/FEM/NonFEM	85101	SPM	5	<input type="checkbox"/>	1	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric DF	Population 1405- Exposure
PM10 - LC/FEM/NonFEM	85101	SPM	6	<input checked="" type="checkbox"/>	1	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric DF	Quality Assurance (Collocation) 1405-
PM10 - STP FRM/FEM	81102	SLAMS	3	<input type="checkbox"/>	1	NBR	COM	001	ug/m^3	079	R&P SA246B TEOM	Population Exposure
PM2.5 - LC FRM/FEM	88101	SLAMS	4	<input type="checkbox"/>	1	NBR	COM	105	ug/m^3-LC	182	FDMS-Gravimetric DF	Population 1405- Exposure
PM2.5 - LC FRM/FEM	88101	SLAMS	5	<input checked="" type="checkbox"/>	1	NBR	COM	105	ug/m^3-LC	182	FDMS-Gravimetric DF	Quality Assurance (Collocation) 1405-
PM2.5 Tot Atmospheric	88500	SPM	1	<input type="checkbox"/>	1	NBR	AQI	105	ug/m^3-LC	790	FDMS-Gravimetric DF	Population 1405- Exposure
PM2.5 Tot Atmospheric	88500	SPM	2	<input checked="" type="checkbox"/>	1	NBR	AQI	105	ug/m^3-LC	790	FDMS-Gravimetric DF	Quality Assurance (Collocation) 1405-
PM2.5 Volatile Channel	88503	SPM	1	<input type="checkbox"/>	1	NBR	AQI	105	ug/m^3-LC	790	FDMS-Gravimetric DF	Population 1405- Exposure

PM2.5 Volatile Channel	88503	SPM	2	<input checked="" type="checkbox"/>	1	NBR	AQI	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	Quality Assurance (Collocation)
Relative Humidity	62201	SPM	1	<input type="checkbox"/>	1	N/A	MET	019	%humidity	020	Instrumental-Computed (Indirect)	Other
Relative Humidity	62201	SPM	2	<input checked="" type="checkbox"/>	1	N/A	MET	019	%humidity	020	Instrumental-Computed (Indirect)	Other
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	1	N/A	MET	014	deg	067	Instrumental: RM Young Model 05103	Other (5.5 meters)
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	1	N/A	MET	012	mph	067	Instrumental: RM Young Model 05103	Other (5.5 meters)

Trimble

AQS Site Number29-049-0001

7536 SW. O Highway, Trimble, MO 64492

Latitude: 39.53063 **AQCR:** 137 Northern Missouri
Longitude: -94.55594 **MSA:** 3760 Kansas City, MO-KS
Elevation (ft): 1033

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC</i>	<i>Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State-Obj</i>	<i>AQS Unit-Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Ozone	44201	SLAMS	1	<input type="checkbox"/>	1	NBR	COM	007	ppm	047	Ultraviolet Photometric	Max Ozone Concentration

Ozone 44201 SLAMS 2 ☒ 1 NBR COM 007 ppm 047 Ultraviolet Photometric -

Troost

AQS Site Number 29-095-0034

724 Troost (Rear), Kansas City, MO 64106

Latitude: 39.10465 **AQCR:** 094 Metropolitan Kansas City

Longitude: -94.57055 **MSA:** 3760 Kansas City, MO-KS

Elevation (ft): 941

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC</i>	<i>Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State-Obj</i>	<i>AQS Unit-Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
Barometric Pressure	64101	SPM	1	<input type="checkbox"/>	1	N/A	MET	059	mm (Hg)	014	Instrumental-Barometric Sensor	Other
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Nitric Oxide	42601	SPM	1	<input type="checkbox"/>	1	URB	COM	008	ppb	074	Chemiluminescence	Population Exposure
Nitrogen Dioxide	42602	SLAMS	1	<input type="checkbox"/>	1	URB	COM	008	ppb	074	Chemiluminescence	Population Exposure
Outdoor Temperature	62101	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other (4m Probe Height)
Oxides of Nitrogen	42603	SPM	1	<input type="checkbox"/>	1	URB	COM	008	ppb	074	Chemiluminescence	Population Exposure

PM10 - LC/FEM/NonFEM	85101	SPM	6	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	239	Teledyne API T640x	Population Exposure
PM10 - STP FRM/FEM	81102	SPM	6	<input type="checkbox"/>	H	NBR	COM	001	ug/m^3	239	Teledyne API T640x	Population Exposure
PM2.5 - LC FRM/FEM	88101	SLAMS	4	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	181	PM2.5 VSCC FEM or Thermo Scientific 1405-F	Population Exposure
PM2.5 - LC FRM/FEM	88101	SPM	6	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	238	Teledyne API T640x	Population Exposure
PM2.5 Volatile Channel	88503	SPM	1	<input type="checkbox"/>	1	NBR	AQI	105	ug/m^3-LC	181	PM2.5 VSCC FEM or Thermo Scientific 1405-F	Population Exposure
Relative Humidity	62201	SPM	1	<input type="checkbox"/>	1	N/A	MET	019	%humidity	020	Instrumental-Computed (Indirect)	Other
Sulfur Dioxide	42401	SLAMS	1	<input type="checkbox"/>	1	MID	COM	008	ppb	060	Pulsed Fluorescent	Source Oriented
Sulfur Dioxide Max 5-min Avg	42406	SLAMS	1	<input type="checkbox"/>	1	MID	COM	008	ppb	060	Pulsed Fluorescent	Source Oriented

Ursuline North
AQS Site Number29-099-0025

210 Glennon Heights Rd., Crystal City, MO 63019

Latitude: 38.243 AQCR: 070 Metropolitan St. Louis

Longitude: -90.37372 MSA: 7040 St. Louis, MO-IL

Elevation (ft): 578

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
Lead (TSP) - LC FRM/FEM 14129		SLAMS	1	<input type="checkbox"/>	1/6	NBR	COM	105	ug/m^3-LC	813	Inductively Coupled Plasma Mass Spectroscopy	Source Oriented & Upwind Background

Watkins Mill State Park
AQS Site Number29-047-0003

Watkins Mill Road, Lawson, MO 64062

Latitude: 39.407419 AQCR: 094 Metropolitan Kansas City

Longitude: -94.265142 MSA: 3760 Kansas City, MO-KS

Elevation (ft): 1009

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Ozone	44201	SLAMS	1	<input type="checkbox"/>	1	URB	COM	007	ppm	047	Ultraviolet Photometric	Extreme Downwind
Ozone	44201	SLAMS	2	<input checked="" type="checkbox"/>	1	URB	COM	007	ppm	047	Ultraviolet Photometric	-

General Electric Store, Highway 94, West Alton, MO 63386

Latitude: 38.8725 **AQCR:** 070 Metropolitan St. Louis**Longitude:** -90.226389 **MSA:** 7040 St. Louis, MO-IL**Elevation (ft):** 425

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC</i>	<i>Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State-Obj</i>	<i>AQS Unit-Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	013	Electronic Averaging	Other
Outdoor Temperature	62101	SPM	1	<input type="checkbox"/>	1	N/A	MET	017	deg C	040	Electronic Averaging	Other
Ozone	44201	SLAMS	1	<input type="checkbox"/>	1	URB	COM	007	ppm	047	Ultraviolet Photometric	Max Ozone Concentration & Population Exposure
Ozone	44201	SLAMS	2	<input checked="" type="checkbox"/>	1	URB	COM	007	ppm	047	Ultraviolet Photometric	-
Relative Humidity	62201	SPM	1	<input type="checkbox"/>	1	N/A	MET	019	%humidity	020	Instrumental-Computed (Indirect)	Other
Solar Radiation	63301	SPM	1	<input type="checkbox"/>	1	N/A	MET	079	W/m^2	011	Instrumental-Pyranometer	Other
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	1	N/A	MET	014	deg	067	Instrumental: RM Young Model 05103	Other (10m Tower)

Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	1	N/A	MET	012	mph	067	Instrumental: RM Young Model 05103	Other (10m Tower)
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Magnitude 7 Metals (PQAO - 2368)

Magnitude 7 Metals, Site # 1 AECL Water Tower Location AQS Site Number 29-143-9001

391 St Jude Industrial Park, New Madrid, MO 63869

Latitude: 36.51364 **AQCR:** 138 SE Missouri

Longitude: -89.56093 **MSA:** 0000 Not in a MSA

Elevation (ft): 297

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
Indoor Temperature	62107	Industrial	1	<input type="checkbox"/>	1	MID	MET	017	deg C	013	Electronic Averaging	Other
Sulfur Dioxide	42401	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	060	Pulsed Fluorescent	Source Oriented
Sulfur Dioxide Max 5-min Avg	42406	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	060	Pulsed Fluorescent	Source Oriented

Magnitude 7 Metals, Site # 2 East Graveyard AQS Site Number 29-143-9002

391 St Jude Industrial Park, New Madrid, MO 63869

Latitude: 36.50838 **AQCR:** 138 SE Missouri

Longitude: -89.56074 **MSA:** 0000 Not in a MSA

Elevation (ft): 296

Parameter	AQS Code	AQS Monitor Type	AQS POC	Coll	AQS Freq	AQS Scale	State-Obj	AQS Unit-Code	AQS Unit	AQS Method Code	AQS Method	AQS Monitor Objective
Indoor Temperature	62107	Industrial	1	<input type="checkbox"/>	1	MID	MET	017	deg C	013	Electronic Averaging	Other

Sulfur Dioxide	42401	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	060	Pulsed Fluorescent	Source Oriented
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Sulfur Dioxide Max 5-min Avg	42406	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	060	Pulsed Fluorescent	Source Oriented
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Magnitude 7 Metals, Site # 3 West Entrance	AQS Site Number 29-143-9003
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391 St Jude Industrial Park, New Madrid, MO 63869

Latitude: 36.50899 **AQCR:** 138 SE Missouri

Longitude: -89.57099 **MSA:** 0000 Not in a MSA

Elevation (ft): 298

<i>Parameter</i>	<i>AQS Code</i>	<i>AQS Monitor Type</i>	<i>AQS POC</i>	<i>Coll</i>	<i>AQS Freq</i>	<i>AQS Scale</i>	<i>State-Obj</i>	<i>AQS Unit-Code</i>	<i>AQS Unit</i>	<i>AQS Method Code</i>	<i>AQS Method</i>	<i>AQS Monitor Objective</i>
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Indoor Temperature	62107	Industrial	1	<input type="checkbox"/>	1	MID	MET	017	deg C	013	Electronic Averaging	Other
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Sulfur Dioxide	42401	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	060	Pulsed Fluorescent	Source Oriented
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Sulfur Dioxide Max 5-min Avg	42406	Industrial	1	<input type="checkbox"/>	1	MID	COM	008	ppb	060	Pulsed Fluorescent	Source Oriented
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Wind Direction - Resultant	61104	Industrial	1	<input type="checkbox"/>	1	MID	MET	014	deg	065	Instrumental: RM Young Model 05305	Other
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Wind Speed - Resultant	61103	Industrial	1	<input type="checkbox"/>	1	MID	MET	011	m/s	065	Instrumental: RM Young Model 05305	Other
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APPENDIX 2: COMMENTS ON PROPOSED 2019 MONITORING NETWORK PLAN, RESPONSES TO COMMENTS, AND CORRECTIONS

Emailed Comment from David Bright of EPA, July 1, 2019

From: Bright, David

Sent: Monday, July 1, 2019 9:13 AM

To: Hall, Stephen

Cc: Casburn, Tracey

Subject: Missouri 2019 Air Monitoring Network Plan question

Hello Mr. Hall,

I am reviewing the Missouri Department of Natural Resources Air Pollution Control Program 2019 Monitoring Network Plan dated June 18, 2019. Page 15 has a table where Population Weighted Emission Indexes are calculated. I have compared the population numbers in this table to the US Census Bureau website and found that all population figures match except for Poplar Bluff. Your table has an estimated 2018 population of 72,062 but I find an estimated 2018 population of 42,639 on the Census Bureau website. Here is a link to where I found my number; <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>

Can you tell me if a source other than the Census Bureau website was used to determine the estimated 2018 population of Poplar Bluff in this Monitoring Network Plan?

Thank you,

David Bright

Air Quality Planning Branch

Region 7 Air & Radiation Division

United States Environmental Protection Agency

Response to Comment

The Census Bureau website was the source of 2018 population estimates. However, the Poplar Bluff micropolitan statistical area (Butler County) was mistakenly combined with the adjoining Kennett micropolitan statistical area (Dunklin County) in the Population Weighted Emission Index table in the previous version of the Plan. The Department has corrected the table in the Monitoring Network Plan. No other changes were necessary as this did not affect the required numbers of SO₂ monitoring sites.

Emailed Comment on page 20, Section 3.2, from Department Environmental Services Program Staff, July 22, 2019

Staff would like this clarified better as to the Blair BC being a SLAMS and not a SPMS.

Response to Comment

The Department's Air Pollution Control Program revised this section to make it clear that the Blair Street black carbon measurement is part of the NATTS program, not a special purpose monitor.

Emailed Comments on Appendix 1 from Department Environmental Services Program Staff, July 22, 2019

Environmental Services Program staff provided several technical corrections to details in the network table in Appendix 1.

Response to Comments

The Department's Air Pollution Control Program corrected the network table in Appendix 1. None of the corrections change the scope of the monitoring program.

Emailed Comment and Attached Letter from Dennis Randolph of City of Grandview, July 12, 2019

From: Dennis Randolph

Sent: Friday, July 12, 2019 4:31 PM

To: cleanair <cleanair@dnr.mo.gov>

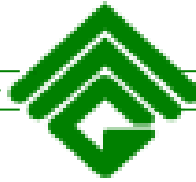
Cc: Joe Gall

Subject: Comments Concerning "Monitoring Network Plan"

Attached please find a letter containing our comments regarding the proposed "Monitoring Network Plan." This letter is sent in response to your published ad asking that comments be submitted by July 19, 2019.

Because neither your ad nor the Monitoring Plan indicate the process you will use to deal with any comments you receive, in the name of transparency we request that you provide us with the process that will be used regarding our comments and any others that you receive.

If you have any questions or wish any further information please feel free to contact us.



1200 Main Street
Grandview, Missouri
64030-2498
(816) 316-4856

July 12, 2019

Missouri Department of Natural Resources
Air Pollution Control Program
Air Quality Analysis Section/Air Monitoring Unit
P.O. Box 176
Jefferson City, MO 65102
cleanair@dnr.mo.gov

Re: 2019 Monitoring Network Plan Comments

In response to your recent notice (attached), we have the following comments on the 2019 Monitoring Network Plan (Plan). Our comments address several concerns. Our first is the Plan does not clearly detail how MoDNR will use data it collects to protect the health of Missourians through managing its permitting and regulatory activities. Our second concern is that while working to meet the requirements of 40 CFR 58.10, we find no evidence the requirements of Executive Order 12898 [1994] have been met.

On our first stated concern: LACK OF INFORMATION SHOWING HOW MoDNR WILL USE THE DATA IT COLLECTS IN ITS PERMITTING AND REGULATORY ACTIVITIES, we have the following comments:

A review of various state and federal web pages show data used for some generalizations and wide area summaries. However, we have found nothing that could be useful for evaluating air quality in small, specific areas such as Grandview.

As part of our review, we looked at tools such as EJScreen, Real Time Geospatial Data Viewer (RETIGO), AirNow, EnviroFlash, and Community-FERST. As Grandview is an environmental justice – majority-minority community, we went to Grandview, as a representative community in the State, in each tool, to see what information was available for our city. In each instance, we found no information that we could use to determine specific conditions in Grandview. All the tools show area-wide information. This information represented conditions in the entire metropolitan area, suggesting that conditions were uniform throughout the area. There was no suggestion that conditions in our community might be better or worse because of the cumulative effects of transportation facilities or site-specific generators developed over the years.

Clearly, these tools lack granularity. Thus, we have a concern about how useful they would be for MoDNR permit writing staff when using them for surveillance or preliminary planning during reviews for permit applications under the CAA (in Grandview for instance). In addition, we feel such tools are of limited use to city staff when trying to make comments on proposed permits (under the CAA for example) in a city. They do not provide site-specific information on existing, and ambient conditions, and so are of little use.

Because it is necessary therefore, to go to source data to try to get more site (city) specific information, we used the tools to access data files at nearby monitor locations. We found that we could get data files. We also found that being able to analyze the data (from one or more sites) to prepare exhibits such as isoline maps requires much time and experience. While MoDNR may have the staff and time to manipulate the data files to do this kind of work, communities such as Grandview do not. More important, such work is a challenging task for the typical citizen in any community to carry out. Even if they have the time and experience to do so, we believe, more importantly, that their technical and statistical expertise would be open to criticism by MoDNR staff, and their concerns dismissed by MoDNR.

In our opinion, MoDNR's emphasis is more about meeting the procedural requirements of 40 CFR 58.10 and less about how the Plan might help the Citizens of Missouri use any data that MoDNR collects. Obviously, there is a need to comply with 40 CFR 58.10. However, there is also a legal duty to comply with other laws and orders, which MoDNR ignores. Regardless, data collected for the sake of collecting data does not help protect people and the environment. Neither can data collection help residents if residents cannot easily access and use the data. Frankly, we believe that gaining understanding from good analysis of good data is why we collect data in the first-place.

On our second stated concern: LACK OF INFORMATION SHOWING HOW MoDNR ADDRESS' ENVIRONMENTAL JUSTICE, we have the following comments:

While trying to comply with the terms of 40 CFR 58.10 and its associated appendices, MoDNR has ignored Executive Order 12898 [1994] (EO 12898). Because an Executive Order carries the weight of law, federal agencies, and states carrying out federal programs must comply with Executive Orders. We do not believe this has happened in the case of the 2019 Monitoring Network Plan.

Air quality is a special concern for environmental justice communities. EO 12898 directs agencies to seek the comments of people living in environmental justice areas and consider those comments before taking any major actions related to federal laws, including the CAA. We believe preparing the Plan is a major action. Moreover, we do not believe that MoDNR has either sought comments specifically from environmental justice communities or considered environmental justice in developing the 2019 Monitoring Network Plan. Finally, we believe that in working to meet the terms of 40 CFR 58.10, the terms of EO 12898 are not in any way waived by 40 CFR 58.10 or any other law.

The Environmental Protection Agency (EPA) has oversight over the federal laws related to air quality (among other areas). The EPA also has a responsibility to carry out the mandates of EO 12898 in its direct activities and the activities of state agencies managing various federal programs for EPA. On its web site, EPA presents a summary of EO 12898:

Summary of Executive Order 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations¹

59 FR 7629; February 16, 1994

Executive Order (E.O.) 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations - was issued by President William J. Clinton in 1994. Its purpose is to focus federal attention on the environmental and human health effects of federal actions on minority and low-income populations with the goal of achieving environmental protection for all communities.

The E.O. directs federal agencies to identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law. The order also directs each agency to develop a strategy for implementing environmental justice. The order is also intended to promote nondiscrimination in federal programs that affect human health and the environment, as well as provide minority and low-income communities access to public information and public participation.

As a reminder, we note that an executive order is²:

“A presidential policy directive that implements or interprets a federal statute, a constitutional provision, or a treaty. The president’s power to issue orders comes from Congress and the U.S. Constitution. Executive orders differ from presidential proclamations, which are used largely for ceremonial and honorary purposes... .. Executive orders do not require congressional approval. Thus, the president can use them to set policy while avoiding public debate and opposition... ..

Historically, executive orders related to routine administrative matters and to the internal operations of federal agencies, such as amending Civil Service Rules and overseeing the administration of public lands. More recently, presidents have used executive orders to carry out legislative policies and programs. As a result, the executive order has become a critical tool in presidential policy making.”

Until Congress or the Courts act to override an Order, or the President revokes an Order, they remain in effect with the full force of law. Thus, for the Plan, while 40 CFR 58.10 prescribes the technical compliance requirements, EO 12898 prescribes the environmental justice compliance requirements. We believe EO 12898 is fully applicable to any of the work done to prepare the Plan and to the Plan itself. Moreover, we do not believe that compliance with 40 CFR 58.10 in any way waives any of the terms of EO 12898 or the need to comply with the executive order.

We feel this is important because in reviewing MoDNR’s website for guidance or policy on compliance with EO 12898, we have not found any. We have done several searches of the MoDNR website over the past years using search terms such as “environmental justice” and 12898. We have not been able to find any policy or guidance reference to EO 12898. We have found references to various impact studies where there is mention of environmental justice in an environmental document prepared under NEPA. However, these are not policy or guidance for MoDNR staff to comply with EO 12898.

We have found one obscure reference³ to environmental justice in a workforce diversity plan. However, we believe this reference, by its plain reading, applies strictly to employee training relating only to hiring

¹ <https://www.epa.gov/laws-regulations/summary-executive-order-12898-federal-actions-address-environmental-justice>

² <https://legal-dictionary.thefreedictionary.com/Executive+Order>

³ MISSOURI DEPARTMENT OF NATURAL RESOURCES

and internal personnel matters. It is positive that MoDNR employees might have become familiar with the term “environmental justice.” However, in the most general sense, it does not, we think, provide any guidance to employees on how they should address or deal with environmental justice communities throughout the State of Missouri. Another concern we have is that in this reference to environmental justice, there is a fatal flaw. Specifically, the document only includes “economically disadvantaged” in its definition of environmental justice community members (see extract below).

“Result: April 2010, the department formed a committee to examine its efforts toward environmental justice. This group is part an ongoing process of pilot projects, research and proper dissemination of information to those who are or may be economically disadvantaged.”

We would like to point out that EPA defines environmental justice in the following way:

“Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. This goal will be achieved when everyone enjoys:

- the same degree of protection from environmental and health hazards, and
- equal access to the decision-making process to have a healthy environment in which to live, learn, and work.⁴”

MoDNR, as the agent for EPA in managing the CAA, should use the same definition for an environmental justice community as EPA. That is, it should make clear that MoDNR’s definition includes race, color, national origin as well as income (economically disadvantaged). If for no other reason, we find the Plan unacceptable because there is no hint that it complies with EO 12898 in this regard.

We have not found (at least through our web searches) any work products from the resulting *committee on environmental justice* on how to deal with the special problems that environmental justice communities face. If there are such work products, we would like copies. We would be glad to file a request under Missouri’s Sunshine Laws if that would help the process. Unfortunately, we have not

HUMAN RESOURCES PROGRAM and EMPLOYEE RELATIONS OFFICE

Identification of Problem: Ensure that all department employees receive training, particularly Workplace Awareness (Cultural and Work Force Diversity, Sexual Harassment) training.

Result: In 2010 and continuing in 2011, the Department’s Professional Development and Training Unit implemented new trainings and are in the process of updating existing training programs.

- Generational training was introduced to management to assist them supervising diverse staff
- FMLA training was implemented to make management aware of various needs of staff
- INSIGHTS training was added to enhance cohesiveness among work groups by acknowledging strength in diversity
- Diversity training is in the process of being updated to better meet the terms of all staff being trained.
- **Identification of Problem:** Allow a process for complaints or concerns from the public or clients to be handled in a non-discriminatory, confidential and efficient manner.

Result: The department developed and is in the process of implementing a policy which addresses complaints from individuals that it conducts business with at any time. Complaints are fielded through the Office of Employee Relations for confidential review and determination.

Identification of Problem: Develop a business strategy that addresses social responsibility and the environment.

Result: April 2010, the department formed a committee to examine its efforts toward environmental justice. This group is part an ongoing process of pilot projects, research and proper dissemination of information to those who are or may be economically disadvantaged.

⁴ <https://www.epa.gov/environmentaljustice>

found any guidance or policy that addresses how MoDNR deals with EO 12898, especially when preparing major documents such as the 2019 Monitoring Network Plan.

Regarding the proposed 2019 Monitoring Network Plan, because there has been no consideration for EO 12898, we believe the Plan is lacking in the following areas, besides our concern expressed above:

- Input and Consultation: During Plan development it appears there has been no obvious, planned, or coordinated consultation of minority groups and residents of environmental justice communities seeking their comments.
- Systematic Analysis: In the Plan, there is no suggestion of methods or procedures for systematically using the data collected to evaluate the quality of air in environmental justice communities in the State of Missouri.
- Use of Data in the Regulatory Process: In the Plan, we can find no procedures stated for using the data in the permitting and regulatory processes to fix emission limits for new facilities in areas near to or within environmental justice communities.
- Incorporation of Citizen Science Data: There has been increasing emphasis on collecting and using data collected by citizen scientists. EPA is studying various monitoring equipment to identify those that might be suitable for citizen scientists to use. In addition, there is a recent study in the Kansas City metropolitan area (in Kansas City, Kansas) that consists in part of citizen scientists collecting air quality data. These two actions suggest that Citizen Science will become a part of mainstream air quality monitoring efforts soon and so justify at a minimum, a cursory reference or comment in the Plan; there is none.
- Measurement of Cumulative Impact: The Plan is also silent to the problem of cumulative impacts. For environmental justice communities, especially, we find that permitting agencies ignore the cumulative effect of multiple point sources as well as linear sources such as highways in their permit reviews. In Grandview's case for example, there is no consideration that two major highways bring over 120,000 cars and trucks a day through the center of an environmental justice community to the detriment of our resident's health and welfare.

There may not be a legal duty that MoDNR consider the cumulative impact on air quality in its Plan. However, there is a moral and ethical duty to measure air quality when the cumulative impact of many individual decisions over the years may have created poor air quality for residents. Neither the Plan, nor the existing network of monitoring stations can, we believe, provide data that can answer concerns about cumulative impacts in environmental justice (or any other) communities.

Finally, as we noted earlier, we recently queried the Missouri DNR website (<https://dnr.mo.gov/>) for the terms "environmental justice" and "12898" and received no hits about policy or procedures on EO 12898. This startling result begs the question: "How seriously does the Missouri Department of Natural Resources take its duty, when carrying out federal programs, to comply with Executive Order 12898⁵? That we cannot find *hits* on the terms "environmental justice" or "12898" in MoDNR's published web pages is a concern. This concern raises another question, how serious have MoDNR's efforts been to seek comments from EJ communities in preparing this Plan? We recognize that we have in-fact found your notice and are providing you with our comments. However, we know this is because of long-standing concerns of MoDNR's compliance with EO 12898, and not because MoDNR sought them out

⁵ As of 6/25/19

from us because of our City's status as an EJ community. Finally, if such terms are not available for people to search and find, then how available is any of this data or other information to environmental justice communities? People want to find things quickly in internet searches using common sense search terms, and can be discouraged easily. How can members of disadvantaged communities find information about air quality pertaining to them, if there are no key terms to hit?

In closing, we want to note that besides our comments above, we feel that answers to the following questions would provide much of the information we feel MoDNR should include in the Plan:

Regarding Systematic Analysis

We have the following concerns about data, specifically since it appears the Plan focuses on collecting data for the sake of collecting data.

- I. We see no sign of how MoDNR will use the monitoring data in either the short- or long-term, other than feeding generalized models. How will MoDNR use it to directly benefit Missourians?
- II. There is no mention of how MoDNR will use and integrate monitoring data from surrounding states to protect Missourians (as with Kansas data for the City of Grandview). How will MoDNR do this?

Regarding Input and Consultation

We have concerns about how the Plan addresses the terms of Executive Order 12898, and we have the following questions:

- I. What consideration has MoDNR given to EO 12898 in developing the Plan?
- II. What coordination did MoDNR specifically have with environmental justice communities when preparing this plan?
- III. How does the plan provide for the analysis of air quality in environmental justice communities?
- IV. What routine surveillance does MoDNR do to evaluate air quality in environmental justice communities?
- V. What consideration does MoDNR give to promoting the use of monitoring data by environmental justice communities?
- VI. What consideration does MoDNR give to simplifying the use of monitoring data by individuals who do not have a college degree in a STEM area?
- VII. Has MoDNR ever done any analysis of the use of web pages by the public and by individuals in environmental justice communities?
- VIII. How does MoDNR plan to use the monitoring data collected under this plan to evaluate air quality conditions in environmental justice communities?
- IX. How does MoDNR plan to use the monitoring data collected under this plan to evaluate permit applications filed under the terms of the Clean Air Act?

Regarding Using Data in the Regulatory Process

We feel it is critical that MoDNR configure a Monitoring Network Plan with the final use of data in mind. If it is not, we may simply have randomly placed monitors collecting data that may not be useful for good scientific analysis. At best, any collected data would certainly not provide useful answers to serious questions of health and welfare; only random numbers scattered on a map. Thus, we have the following questions.

- I. How does MoDNR use the monitoring data to assess ambient conditions in areas around sites where applications for emitters have been filed?
- II. What steps does MoDNR have, in its permitting process, to review monitoring data to assess cumulative impact of potential emitters?

We understand from your notice that this is an annual update. Because of the absence of any reference or consideration of EO 12898 in this update, we can only conclude that previous versions of the Plan have also overlooked EO 12898. However, our comments here strictly reflect our reading of this Plan. We do not feel that any previous plan approvals have waived compliance with EO 12898, or suggest in any way that MoDNR has complied with EO 12898.

We appreciate the opportunity to comment on the 2019 Monitoring Network Plan. If you have any questions please contact me at (816) 316-4855, or drandolph@grandview.org

Sincerely,

THE CITY OF GRANDVIEW

A handwritten signature in black ink, reading "Dennis A. Randolph". The signature is fluid and cursive, with the first name "Dennis" being more prominent.

Dennis A. Randolph, P.E., PTP, PTOE
Director of Public Works

cc: Matthew Tejada
Joseph Gall

attach

NOTICE**2019 Monitoring Network Plan**

The Department is seeking comments on the annual Monitoring Network Plan. A link to the 2019 Monitoring Network Plan may be found at <https://dnr.mo.gov/env/apcp/public-notice.htm>

Changes from the previous Monitoring Network Plan are minor and include a Photochemical Assessment Monitoring Station (PAMS) to begin at the Blair Street site by June 2021.

The Monitoring Network Plan fulfills the terms in 40 CFR 58.10 to make an annual monitoring network plan available for public inspection at least 30 days before submitting the plan to the U.S. EPA. The plan details the establishment and maintenance of an air quality surveillance system that consists of a network of air monitoring stations.

Please submit comments concerning this Monitoring Network Plan by email to: cleanair@dnr.mo.gov

Or in writing to:

Missouri Department of Natural Resources

Air Pollution Control Program

Air Quality Analysis Section/Air Monitoring Unit

Jefferson City, MO 65102

Please submit all comments by July 19, 2019. Thank you.

Response to Comment

The comments from the City of Grandview, Missouri focus on elements of the monitoring network planning process, presidential Executive Order 12898 [1994] (EO 12898), and air permitting. All comments received and the Department's response to comments are included in this Appendix to the final version of the plan, submitted to EPA, and published on the Department's website.

As discussed in the introduction to this plan, the Department operates an ambient air quality monitoring network to comply with regulatory requirements in 40 CFR 58 which are based on the Clean Air Act. 40 CFR 58.10 requires the annual monitoring network plan to include "SLAMS, NCore, CSN, PAMS, and SPM stations," which this plan details. Near real-time monitoring data from this ambient air monitoring network is provided to the public in the form of an Air Quality Index (AQI).

Although the comments received are outside the scope of the Monitoring Network Plan requirements, the Department is providing brief responses below.

Presidential Executive Order 12898 [1994] (EO 12898) applies to federal agencies, and EPA implements the requirements of EO 12898 in federal regulations, such as air monitoring regulations in 40 CFR Part 58. Therefore, the Department is complying with EO 12898 by complying with 40 CFR 58.

- Air pollution control permitting requirements are addressed in other state rules and are therefore not addressed in this plan. For reference, see: 10 CSR 10-6.060 Construction Permits Required, 10 CSR 10-6.061 Construction Permit Exemptions, 10 CSR 10-6.062 Construction Permits By Rule, and 10 CSR 10-6.065 Operating Permits.
- The Monitoring Network Assessments required by 40 CFR 58.10(d) address the questions regarding systematic analysis of emissions and other data required to evaluate and modify the ambient air monitoring network. The Department submitted a monitoring network assessment to EPA in 2015 and will submit the next monitoring network assessment to EPA in 2020. The 2015 Monitoring Network assessment is available on the Department's website at <https://dnr.mo.gov/env/apcp/airpollutants.htm> (click on "Five-Year Assessments of Monitoring Network" on the left side).
- Near-roadway monitoring of NO₂ and CO were required as a part of the regulations implementing a revision to the NO₂ standard in 2010 and the CO standard in 2011. These requirements were implemented to determine the exposure of persons living or working near roadways with relatively high traffic counts. Identification and selection of locations for near-roadway monitoring is discussed in detail in the Department's monitoring network plans, especially the 2012 plan. Near-roadway monitoring sites were established adjacent to Interstate 64 in St. Louis and adjacent to Interstate 70 in Kansas City in 2013 and adjacent to Interstate 70 in St. Louis in 2015.

- Citizen Science and any air quality data obtained by citizen groups is not currently part of the federal monitoring network design requirements, nor are there any federal quality assurance requirements for use of this type of data for regulatory purposes such as determination of NAAQS compliance. Data for determination of NAAQS compliance must be obtained from instrument types designated as Federal Reference or Equivalent Methods, and they must be sited and operated according to specific requirements included in 40 CFR 58. The Department continues to follow developments in the area of citizen science and use of relatively inexpensive sensors and will evaluate any new federal requirements if they are promulgated.

No changes were made to the plan as a result of these comments.